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Rupert Downes Memorial Lecture.[1]

"BE STRONG AND OF A GOOD COURAGE."

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To have been afforded this opportunity of paying public tribute to a great man is a proud privilege, but a privilege tempered by a keen awareness that the occasion should prove worthy of one to whom this country owes so much.

The success of any endeavour must rest equally with those who plan and prepare as with those who participate in it, and the many and memorable achievements of the Australian Army Medical Corps in World War II were made possible by the vision, the planning and the preparation of Rupert Downes. The men and the minds that brought about these achievements in the field of battle had been selected, trained and inspired by Rupert Downes, and the honours and awards that came to them were equally his entitlement.

When occasions such as this are devoted to an individual, inevitably there comes a time when the orator can speak no longer with the personal inspiration of his subject. It is fitting, therefore, that we who were privileged to know Rupert Downes should record the impressions he made upon us.

Downes was tall and straight. His height was emphasized by his slimness—amounting, until well into middle life, almost to slightness. But the first and enduring impact of the man came from the intensity of his calm blue eyes, fearless yet kindly, honest and humorous blue eyes, as if the heavens had smiled and cast their clear colour upon him.

My first contact with Rupert Downes was nearly forty-five years ago; I was a medical student under him as my demonstrator in anatomy. He strode the dissecting room—this fair-haired, tall, straight figure in a long white coat, trailing even on his tallness almost to the ground—and such are the quaint quirks of memory, I vividly recall the rather open weave of those coats. That I learnt anatomy, or at least was able to persuade Professor R. J. Berry and Dr. Jock Anderson that I had done so, and that for many years later I demonstrated in the anatomy department, was due very largely to Rupert Downes.

One day early in October, 1914, in the mud of Broadmeadows, just before we embarked for the Middle East in World War I, I, a young and humble trooper in the First Light Horse Field Ambulance, saw the arrival of the advance guard of the Third Light Horse Field Ambulance with the tall figure of the Commanding Officer, the youngest lieutenant-colonel in the Australian army—Lieutenant-Colonel Rupert Downes.

[1] Delivered on June 7, 1957, at the Royal Australasian College of Surgeons, Melbourne.

I saw little of him in Egypt. His camp was at Mena, by the Pyramids; we were on the other side of the Nile at Maadi, some miles away, and during the Gallipoli campaign medical students in their clinical years were sent back to complete their course. Colonel Downes soldiered on through the grim heat of the summer and the bitter cold of winter on the Peninsula, across the Sinai desert into the land said to be flowing with milk and honey—those stony hills and plains of Palestine—down into the oppression of the Jordan Valley and on to final victory in Syria. The greatest cavalry campaign since Genghis Khan in the twelfth century and probably the last in the world did not capture the popular imagination as did the foul trenches of Flanders; but history will record Allenby's triumph as truly great, and Downes's splendid contribution to this campaign has been recorded.

A few years after the war I again became closely associated with Rupert Downes as an assistant in his surgical out-patient clinic at the Children's Hospital. There one morning just thirty years ago, he asked me to consider coming back to the active list. Downes at this time was Deputy Director of Medical Services, 3rd Military District (as Victoria was then designated), and there was a slump in the army. The war was over—why be a soldier? Why worry about defence? The cavalry field ambulance to which I was posted possessed two other officers, a lieutenant-colonel and a major, with about thirty other ranks. However, I believe that no decision I ever made had a more profound effect on my life than my acceptance of this suggestion that I should again enter the army.

About this time also we played together in the medicos' cricket team—a happy band of brothers that sadly has disappeared. I saw Rupert Downes make many graceful runs, and from behind the stumps I watched him bowl a heady ball with a length and a whip that won many wickets.

After the retirement of Major-General G. W. Barber, Downes was appointed Director-General of Medical Services of the Australian Military Forces. Training was tightened, a keenness developed, units grew to something like their establishments, and when the call came in 1939, thanks to Rupert Downes the Australian Army Medical Corps was ready. Between the wars there were only two medical officers in the regular army—the Regimental Medical Officer at the Royal Military College, Duntroon, and the Director-General of Medical Services in the lonely, rarefied atmosphere of army headquarters, Melbourne. Fortunately, Rupert Downes was served by two splendid staff officers, Lieutenant-Colonel J. A. Heath and later Lieutenant-Colonel A. Christie, and I am sure that he would have been the first to declare that without the splendid loyal service of these men he could not have achieved what he brought about—for Rupert Downes was generous and honest in his appreciation.

The story of the Australian Army Medical Service is enshrined elsewhere, and to all those associated with the service this record is of great pride. During the testing, challenging years of World War II, in the deserts, over the mountains and through the jungles, our Corps proved worthy, and when His Majesty King George VI graciously awarded us the title Royal, this was truly a tribute to the service of Rupert Downes.

One hot day in 1941, Major-General Downes came to our Divisional Headquarters among the red-stemmed pines of Beit Marie, high in the hills of the Lebanon Range above Beirut. He was on a tour of inspection in the Middle East. The bitter Syrian campaign had just ended. We talked of this and that, Downes's keen inquiring mind seeking to learn of the deeds in battle of the Service he had planned. This was almost the last time we talked with any intimacy.

Early in 1945, the most colourful soldier with whom I have been privileged to serve came to see me when I was convalescing after a long spell in hospital. George Vasey was leaving in a few days to take over a new divisional command. We had been closely associated in the "Silent Seventh" Division during the first New Guinea campaign over the Owen Stanley ranges, and George wanted me to fly with him to his new command, but the medical authorities would not allow me to travel.

As you all know, in Brisbane General Vasey met Rupert Downes, who was at that time writing the medical war history. Together they flew north, and then—as they would have wished their end—they fell, pressing forward, and passed beyond the sight of men. Valhalla was truly enriched.

"Be strong and of a good courage", exhorted the Lord as He handed over Moses's command to Joshua, "be not afraid, neither be thou dismayed."

In the same area where thousands of years later Rupert Downes was to face the responsibilities of a great challenge, a critical campaign, preceded by a river crossing, lay before the Israelites. Those of you who have experienced the crossing of a river commanded by an enemy, or those of you who have read that memorable record by our Governor-General, Field Marshal Sir William Slim, of the courageous crossing of those great rivers in Burma, "Defeat Into Victory", cannot fail to have realized the nightmare nature of such a military operation. Joshua, inspired by the Lord, was strong and of good courage, the crossing of the Jordan was accomplished and Jericho literally fell before his onslaught; only Rahab and those in her house were spared. Through the Judean hills, conquering the cunning men of Gibeon and all who opposed his army, Joshua and the tribes of Israel pressed on, finally capturing Zion because they were unafraid and not dismayed by the strength that stood against them.

Let us, therefore, in constructive commemoration of a great soldier who himself was strong and of good courage, consider with all humility where these qualities may be applied in the interest of the service for which Rupert Downes gave his life.

After an association with the Australian Military Forces extending over more than forty years, it would not be possible to be ungrateful for this experience. Nor could one fail to cherish the enduring comradeship of arms or to retain a sincere and high regard for many army methods. To those who have received a professional training and practised this as a civilian, the general efficiency of army organization comes as an agreeable surprise. This appreciation, however, is tempered by the conviction that certain features of the army system—as with any other great system—would seem to frustrate an even greater efficiency. Any considerations submitted here are presented as they were presented when I was on the active list—as a contribution to a service to which Rupert Downes and many of us owed much.

Commanders in the Army Medical Service have executive authority only in technical matters—that is, in the application of medical science to those in need. In the provision of personnel, of equipment, in the distribution and deployment of these and in the all-important sphere of preventive measures, they can only advise. This is as it should be to conform to a picture larger than any one branch or arm of the service. That in the last war this important advice was often relegated to a painfully low priority was a reflection, not on the Army Medical Service, but on the other branches of the army responsible for planning, administration and supply.

To this relegation of the medical services, Rupert Downes did not submit silently, and herein lay his great courage, for he knew full well the consequences of such protest and importunity. He was above fear, and what is equally important, he was above favour.

It was a great soldier, Lord Wavell, who had the courage to change his strategy in the campaign in Greece on the advice of a peacetime consultant in tropical diseases. Two years later the decimation by malaria at Milne Bay, and during the Buna and Gona battles in New Guinea, was brought about through disregard of the recommendation of the same adviser, Sir Neil Hamilton Fairley—the foremost malariologist in the world. On more than one occasion since World War II, when a committee composed of the three service medical directors in Australia has submitted recommendations to the Principal Administrative Officers' Committee of Defence—recommendations which in the committee's opinion would contribute to an advance in service health—these directors have been politely informed in writing that it is not for them to initiate advice in

military medical matters, but that they must wait until this is requested by laymen in the services. In fact, one senior administrative officer claimed after World War II that he was capable of appreciating any medical implications of the discussions and decisions of the Military Board, of which he was a member, and further, that he himself was generally able to supply the answers.

It is difficult to understand how those not so trained can fully appreciate the medical implications of any military activity. Sound medical advice, advice proffered in the interests of the army as a whole, is subject to decision by those who by their training are not always qualified to assess its value and importance.

Lord Wavell, in his Cambridge lectures on generals and generalship, ranks robustness high among the qualities of leadership. This is a rare quality—the strength that can suffer the slings and arrows of outrageous fortune, that can take with calmness the rough or the smooth, that can remain steadfast in the face of triumph or disaster—a quality of true and tested strength and courage. Every practising doctor has witnessed occasions of great courage; every soldier in battle knows of acts of bravery many times more numerous than the list of honours and awards which may follow. Courage is not absence of fear—courage is a conquest. My mind turns to a company of men who served in one of our field ambulances during the first New Guinea campaign. This unit, like many others, left Australia under its establishment, and to restore the strength a company of conscientious objectors had been drafted. The claim to be a conscientious objector and to refuse to bear arms may cover a multitude of qualities ranging from cowardice or indifference to a true conviction. To claim to be such during a war is to invite derision, invective and contempt, which to the coward or the complacent mean little; the profession during war of a true conviction that to bear arms is evil requires courage.

One day after we had crossed the Owen Stanley ranges and had pinned the remnant of the enemy into two bitterly resisting pockets along the northern coast of New Guinea about Gona and Buna, I received an urgent message from an officer of the ambulance, about 10 miles away at Oro Bay, that his company had mutinied. I went across through the jungle and found a distracted officer faced with the situation in which the company of "conscies", as they were called, had refused to unload ammunition from a barge. Now this was a lawful order, and disobedience of such an order on active service is a grave offence and liable to most severe penalty.

We talked it over, this officer and I; and while he was left in no doubt as to what I thought of this order being given to such people, the company was paraded and the seriousness of their disobedience was explained to the men, but the charge was suspended and another group was allotted to the duty, which was duly carried out. A few days later the same ambulance was in a heavy and costly action about Saputa, and I saw these "conscie" bearers going in and I saw some of them coming out. Several were killed and many more wounded; but they did not hesitate, and although they were not unafraid—very few soldiers are—they were not dismayed. That was strength and courage and just as that base lie "contemptible" was transmuted into a tradition of glorious gold by those magnificent men of Mons, so did the word "conscie" in that unit and that area signify something of nobility.

Those of you who have read Cecil Woodham-Smith's remarkable book, "The Reason Why", must have been appalled at the conditions that existed in the British Army less than a hundred years ago. The shadow of the Great Duke still lingered over military administration, command and promotion were solely a matter of money and influence, and the continued conduct of those extraordinary humbugs, Lord Cardigan and his brother-in-law Lord Lucan, was possible only under such a system. The pathetic farce of the Crimea closed one chapter in the evolution of the British Army, and sweeping reforms followed, recommended by Lord Wolsley and implemented by Lord Cardwell, Secretary of State for War, in 1870.

The Boer War at the turn of the century, with the tragedies of Modder River, Magersfontein and Buller's costly obstinacy at Spion Kop and along the Tugela River before Ladysmith, again brought about drastic change by Lord Haldane—change which was crystallized in the splendid achievements of World War I.

In those countries such as Australia where military activity is designed for defence, it appears that once again we have reached a crisis in army evolution—a crisis that calls for all the strength and courage that can be summoned to meet it. It has been said that to some there is no pain like the pain of a new idea, and courage and strength are needed to bear pain.

Courage is required to look forward. Individuals and nations become what they are because of what they have experienced, and the tradition of noble experience in the past is a splendid spur to advancement. Long will the battle cry of "Anzac" inspire a selfless service among the youth of Australia. But while there is an awareness of the greatness of the past, there should be also an awakening to the changes of the present and a realization of the requirements of the future.

It is this realization that brings about the great advances in science and in industry, while at times the armed forces of great and noble tradition seem reluctant to keep pace with these advances or to break new ground.

After each of the world wars we so often set about preparing meticulously for the beginning of the last one —reluctant at times to discard the old and outmoded because once it was good. This may be just another manifestation of our almost universal habit of hoarding.

When percussion caps, invented by a hunting, shooting and fishing English clergyman nearly 130 years ago, had been used in sporting guns for years, the army refused for a long time to discard the flint lock. The rifled field guns of the Dover Battery were looked upon with grave suspicion by the Waterloo generals, who had won that great battle without them.

Mechanical road transport was well advanced before it was introduced into the army. Petrol as a factor on land and in the air had been accepted for some years by the civil community before its importance was appreciated by the army, with its horses, general service wagons and those back-breaking limbers. One major-general in World War I objected to the use of trench periscopes, and officially recorded that ". . . it is contrary to the tradition of a British officer to seek information of the enemy from a position of security by means of a mechanical device". A few years earlier an English admiral had described submarines as "underhand, unfair and damned un-English". Fortunately, these major-generals and admirals are going or have gone.

Following and possibly inspired by the theme of a post-war exercise for the Royal Australian Army Medical Corps in November, 1954, the first of its kind in Australia, the training of our army has now become more related to the probabilities of defence in the future.

Sir Edward Appleton in his Reith Lectures stated that "it was only during the war that the nation as a whole came to realize the enormous power of applied science in promoting the tasks that were then on hand", and reminded us how the second World War had taught a great deal about the various ways a scientist and a civilian could serve his country. We surprised our enemies and even ourselves by our success in wartime technology. Perhaps the detection of an enemy at a distance, under the sea, on the surface or in the air is the best known of these contributions, but there were many others.

The advances in the understanding of the nature and the effects of explosives leading to the design of bombs for special purposes were contributed by civilians in a road research laboratory. It was a group of civilians with little intimate knowledge of the navy who demonstrated beyond doubt the economy of large convoys, contrary to the pre-war naval doctrine that smaller convoys meant fewer losses. The enormous average expenditure of anti-aircraft ammunition to bring down one enemy bomber continued until a civilian devised the proximity fuse—whereby, in simple words, the target told the shell, so to speak, where it could do most damage. So was the flying bomb finally conquered.

During the war scientists, technologists and others were encouraged to proffer their own suggestions about what might be possible. In this way, the services were prompted to accept as operational requirements devices, systems and procedures with performances greatly exceeding what they themselves would have thought possible.

In the past we in Australia have been spared close contact with total war. But time marches on, and if our minds are alert we must realize that the responsibilities for defence now concern the whole community, and must be shouldered not only by those in the uniforms of the three fighting services, but also by those in plain clothes —the uniform of the fourth service—civil defence.

Six years ago, on the occasion of the first Rupert Downes Memorial Lecture, Major-General Sir Samuel Burston, speaking of the urgent importance of this activity, said: "I am most strongly of the opinion that no time should be lost by civil defence authorities." Six years ago—are we any less in danger? Whatever assets and advantages a country may possess, these are insecure unless we have the means of maintaining them, and in these uneasy times this means defence.

One great lesson of World War II was the necessity for developing a high morale among all members of a community in this era of total war. Among the most potent factors in ensuring a high morale in the time of danger is to explain this danger and then train people to meet it. And yet the finance available to civil defence in Australia —presumably on service advice—is considerably less than that allocated to rifle clubs.

"It will always finally be the man with the rifle and the bayonet" is still heard, even when perhaps the bayonet should become a pageantry piece. Markmanship and rapidity of fire were all-important in the Boer War and to a certain extent in World War I; but in these days of automatic weapons, guided missiles and area shooting, the ability to hit a small bull's eye at 1000 yards, however excellent an outdoor pastime, seems hardly necessary, and as Salisbury expressed it:

> To gild refined gold, to paint the lily,
> To throw a perfume on the violet,
> To smooth the ice, or add another hue
> Unto the rainbow, or with taper-light
> To seek the beauteous eye of heaven to garnish,
> Is wasteful and ridiculous excess.

Surely, if the 44,000 members of rifle clubs throughout Australia are entitled to £600,000 each year for lily painting, the other nine and a half million citizens of this community are entitled at least to a similar sum to prepare for the reality of their protection in the event of any national disaster.

No one who has lived and served with Australian soldiers can fail to appreciate the splendid qualities of their manhood. I have been privileged to serve with soldiers of many countries in two world wars and in Korea, and I am confident that, treated as an intelligent human being as he is entitled to be treated, the Australian soldier in the ranks is unsurpassed. Given an explanation of his duty, and led by one who leads from the front and who shares his hardships, there is nothing he will not do to the limit of human ability. No sentient officer who has served on active service can ever lose or lessen his regard —his affection—for his men. The challenge lies in the provision of those who are to be the officers.

The Australian army is, and probably always will be, composed of a small number of regular soldiers and a great number of part-time militia. All officers are voluntarily enlisted, and become commissioned in the militia by examination or in the Regular Army either by graduation after four years at the Royal Military College, Duntroon, or after one year at the Officers' Training School at Portsea. This system has produced three classes of officers, and unfortunately no one class always fully appreciates either of the other two classes. Speaking generally, the various staff appointments are filled by Regular Army officers, and with the exception of the small Regular Army field force and the National Service battalions, all units are officered by militia.

Let us consider courage as concerning the Australian Royal Military College, Duntroon, the training ground for those who fill and will fill for many years the senior staff appointments in our army, in addition to the limited regimental postings in the Regular Army and in the National Service.

In certain countries graduation at a military academy is considered a sound basic training for many means of livelihood, and only a proportion of these graduates enter the services. In Canada, after the completion of a university course associated with a military training comparable with that of our militia, a graduate may become commissioned in the Regular Army after a relatively short course at a military college. I understand that the majority of Regular Army officers have entered in this manner and have risen to the highest military appointments in the Canadian army. It is questionable whether our present system in Australia is proving attractive to many among the ranks of young men whose civilian careers have demonstrated their undoubted qualities of leadership.

Entry to Duntroon is by selection from applicants who conform to a suitable medical standard of fitness and to a standard of education below that required for university entrance. No fees are charged, and pay commences from entry, rising with each year's progress. It has been assessed that the cost in public money for each graduate is approximately £8000. This is money well spent if the product is worthy of his hire, and from among the graduates of the Royal Military College, Duntroon, I number some of the most splendid men I have been privileged to know—men who have proved their worth in any manly sphere.

But the environment of a military college such as Duntroon is abruptly different from that of the pre-entry years, and in spite of careful investigation it is not possible with any degree of certainty to predict a young man's reaction to any unencountered experience. Whatever their training before the actual experience, few if any soldiers know with certainty how they will react when someone shoots at them.

As a consequence, there may appear very early in the course disturbing defensive episodes among certain of the students who, consciously or subconsciously, realize that after all soldiering is not their line of country. Until such episodes are manifest in academic or other obvious forms of failure, time and money may be wasted.

It would appear reasonable, in the interests of all concerned, to introduce at the commencement of the course a preliminary period not exceeding six months, at the end of which the college and the student should fearlessly and honestly and with no implication of stigma determine the desirability or otherwise of continuing the course. Provided that the authorities charged with this responsibility were qualified to discharge it, and provided that courage was exercised to overcome any reluctance to reduce the numbers, the country would be saved considerable money and certain students would be free at an early age to enter a more suitable means of livelihood. It requires only the clippers to trim the twig; the saw or the axe may be required to remove an established limb, and in the meantime the limb may have done much damage.

The course at Duntroon covers four years—twice the duration of the course at Sandhurst in the United Kingdom. During these four years considerable time is devoted to what may be considered as subjects of basic education —physics, chemistry, mathematics, economics and English —all below university standards. To devote so much time to subjects of rather academic interest, and to live a somewhat monastic life for four years, any experience of man-management being limited to those similarly restricted, would seem to be a violation of one of the first principles of military art—the maintenance of an objective.

The aim of a military college is to prepare young men for the duties of an officer. In whatever branch of the army these duties may lie, they will be concerned with the direction of subordinates or the managing of men. However recent the expression—"man management" is nothing new—it is a quality possessed by successful leaders throughout history. Sir John Moore impressed this upon

his officers 150 years ago. Sixty years later Sir Garnet Wolsley, in "The Soldiers' Pocket Book", complained that "many officers spent their lives with but little real sympathy between them and their men", and thereby brought down a severe censure from the Commander-in-Chief, the Duke of Cambridge. But the advent of Lord Cardwell at the War Office stood by Wolsley's courage, and ever since there has been a steadily advancing realization in the army that an officer should not only know his tasks, but should also possess an understanding of those who will carry them out. Without a superb understanding of the management of men by the High Command, how could that disease-riddled army, defeated and driven out of Burma, have been gathered together, trained and turned about over that grim jungle they had abandoned, and have driven back the same enemy that had humbled them, until final victory was complete?

It is suggested that a matriculation standard in these academic subjects should be demanded before entry to a military college. This would ensure a sound and sufficient basic academic training, and would permit any student, did he so desire subsequently, to enter a university. Also it would unclutter the course, which could then be reduced to two years.

It is further suggested that on graduation the officer should be granted a provisional commission and seconded for a year to some approved business or industrial enterprise, dependent for its progress on sound administration, including the ability to obtain the best from the employees. If, at the end of that period, a reliable report disclosed an ability to manage men, the commission would be confirmed, or if not, then it would be terminated. This may appear a costly policy; but it would be far less expensive in every way than continuing with an unsuitable officer and paying the price for the remaining years of his service.

"Fear", said Bernard Shaw, "is the mainspring of war" —and there is a germ of truth in this Shavian paradox.

A medical officer in the army has possibly the greatest opportunity of knowing his comrades intimately. In addition to his many official medical duties, the personal problems of his fellow servicemen are laid before him in a most confiding manner, and from my own experience over many years I would consider anxiety the most potent factor determining the activities of many regular soldiers, from the highest to the lowest rank.

Keenness may be associated with ambition—a quality which, if devoid of ruthlessness and opportunism, is powerful; but anxiety is associated with fear and tends to be frustrating. This anxiety has certain obvious bases, including the knowledge that, with the education and training at present available within the army, success in any other walk of life may be precarious. Promotion, at least to the rank of lieutenant-colonel, depends upon seniority and success in examinations conducted by those with little if any training in this important responsibility. Furthermore, advancement in the service may depend to a considerable extent on the avoidance of censure from seniors, who may not have the aptitude for or training in the sound judgement of men, and the yearly assessment of every officer by his senior is recorded in a confidential report—a system introduced by the Duke of Wellington.

This anxiety leads to a seeking for security. Security is essential for the progress of any community or any individual; but it is of little real or enduring worth unless it is won by courage and honest effort, rather than by complacent appeasement. "For what shall it profit a man, if he shall gain the whole world, and lose his own soul?" It is disturbing to hear an officer admit to considering a certain action to be right, yet decline to advocate it as being contrary or unpalatable to his seniors. Is this true to our commission? The Queen's commission is an impressive document, which begins:

> To our Trusty and well beloved — Greetings — We reposing especial Trust and Confidence in your Loyalty, Courage and Good Conduct do by these Presents constitute and appoint you to be an officer in our Land Forces . . .

I would remind all officers that Her Majesty, reposing "especial Trust and Confidence" in our courage, has also exhorted us to "venture beyond the safeties of the past".

The error—if error there be—lies not so much with individuals as with a system, and it requires an avalanche of courage as well as time to change a system. But with no intrusion of impatience, may we question how much time we have?

Confidence requires not only reliability in upholding it, but also courage to impose it. There appears a disturbing lack of confidence in a system which permits a divisional commander to commit nearly 20,000 men to the hazarding of their lives as he may determine, but which will not allow him to spend £200 without seeking special authority so to do. No public money—or any other money, for that matter—should be squandered; but if we entrust leaders with lives, then surely we can trust them with pounds, shillings and pence.

Even when a grant of money for a purpose has been authorized, the detailed spending of it is often considered to be beyond the ability or honesty of a responsible officer, and must be dictated by those in the tyrannical confines of the Treasury, who may not be in a position to assess values, and who have earned the title of "inverted Micawbers, waiting for something to turn down". Such a system leads to uneasiness and anxiety.

The Regular Army officer is sometimes reluctant to admit that anyone who has not undergone a military training such as his can be fitted to discharge any of the army responsibilities.

Until 100 years ago the only roles for women in the army were as sightseers or as camp followers. With the insistence of Florence Nightingale, against tremendous opposition, women became associated with the army as nursing sisters, and ever since have magnificently demonstrated the essential value of their services. In 1907 a group of adventurous young horsewomen in England, unsatisfied by the opportunities of military hospitals, formed what they called the First Aid Nursing Yeomanry, the "FANY's", with the idea of serving in the field as mounted bearers. The British army in 1914 quite rightly would have nothing of them in their self-appointed role; but the Belgians did enlist many of them as ambulance drivers. With the proximity of total war in 1939, civilian men and women trained in the defence of their country; but it required three years of war before the Women's Auxiliary Army Corps was formed, and in spite of the many and magnificent assignments to these "WAAC's", authority baulked at giving them military titles. Officers were classed as "officials", non-commissioned officers as "forewomen", and privates as "workers". Crowns and stars as badges of rank gave way to roses, fleur-de-lis and laurel leaves. But the splendid service of these women demonstrated beyond doubt that certain army positions, hitherto considered the prerogative of men, could perfectly well be filled by women. Within a few years of the conclusion of World War II, in face of considerable opposition, women were permitted to enter the Australian Regular Army, not only as officers and other ranks in the Royal Australian Army Nursing Corps, but also in the Royal Women's Australian Army Corps—the "RAANC's" and the "RWAAC's". Some day in the near future, as E. S. Turner indicates in his interesting book "Gallant Gentlemen", a woman may become a general; but what does it matter, so long as she behaves as an officer and a gentleman?

Shortly after World War II the expansion of the Australian Regular Army and the introduction of National Service placed a severe strain on the available officers and non-commissioned officers. To meet this situation in certain headquarters postings, regular soldiers were replaced by civilians, until the ratio of civilians to regular soldiers in the Department of the Army rose to one in six.

From personal experience in one army directorate, this has been an advance, and has demonstrated that certain army positions may be more efficiently filled by trained civilians than by soldiers trained only in the army. With certain exceptions, so far this policy has been applied to positions relatively junior in the staff scale; but I see no reason why it should not be pursued in the higher spheres, since training in all military requirements does not appear to be available at present within the Australian army.

In my opinion it requires less time and may prove more efficient to train a well-qualified civilian, with professional, business or industrial experience and ability, in the essentials of army staff requirements, than to train a soldier adequately in administering, quartering and supplying army personnel and meeting the ordance ramifications of the army.

I consider that it would be reasonable to reserve the exclusive military training for the many and special functions of the fighting soldier in the field. At the same time, the development of the non-fighting but equally essential branches—those of the Adjutant-General, the Quartermaster-General and the Master-General of Ordnance—would be better under the direction of officers who, after being highly trained in similar civilian services, would be attracted to the army. On entry they would be indoctrinated in army requirements and in the application of their special training and knowledge to meet them.

Undoubtedly officers trained exclusively in the army have filled and are filling these positions splendidly; but I consider that this is a fortuitous achievement rather than the result of a sound system.

I realize that this conception will be considered as heresy or worse by many whose opinions I value highly, and that many difficulties must be overcome before it could succeed. Not the least of these difficulties would be the problem of attracting suitable civilians under the existing code of army pay and allowances; but whatever excuses may be and probably would be advanced, I see no reason why this pay code should not be brought into line with that of comparable responsibilities in civilian activities. It should not cost a recruit anything to enter the army.

During and since World War II, consideration has been given in Australia and in other countries to the possibility of a defence medical service rather than the existing three separate medical services—those of the navy, army and the air force. In my opinion, this is feasible to a certain level.

A beginning has been made by the acceptance, for some years now, of an instruction for the medical examination of recruits common to the three services. Common documentation and common scales of medical equipment are being considered. While there will almost certainly remain specialized requirements in personnel and equipment for each of the three services to meet certain aspects of their responsibilities, it would appear possible for them to come together on common ground in base hospitals, convalescent depots and other establishments remote from a battle area, with no loss of efficiency, but with a considerable economy in personnel, equipment and accommodation. It is possible that this pooling principle may be applicable to other branches among the three services. However, with the undoubted reluctance of any one service to loosen complete control of its activities, this again will require outstanding courage and vision.

Rupert Downes was of the army, but he did not belong to it. He belonged to the community, and splendidly he played his part in community activities. Whatever our walk of life—be this in the professional field or in the world of business or industry—we always remain a citizen with the privileges and the responsibilities of our citizenship. The proudest boast of men in the powerful days of the Roman Empire was "*Civis Romanus sum*"—"I am a Roman citizen". There are opportunities before each of us to contribute, as did Rupert Downes, something apart from our means of livelihood, however humble, to the welfare of our community, with no desire and expectation of a return beyond the satisfaction of discharging in part a debt we can never pay in full.

Let us therefore be strong and of good courage, as was Rupert Downes, and resolve that in these difficult times of prosperity and apparent ease we will take part in national and communal interests as did he, determining our decisions not because of their advancement in our own affairs or in our popularity, but because of their contributions to our fellow men. With the courage of Rupert Downes may we realize that honesty is above all, that opportunism is base, and that the loneliness of a minority need not matter. For all goes if courage goes.

Mr. President, when your College did me great honour in inviting me to deliver this oration, you imposed upon me a heavy responsibility. "The Call to the People of Australia", you will remember, begins: "There are times in the histories of people when those charged with high responsibilities should plainly speak their minds." In discharging this responsibility you imposed upon me, I have endeavoured to answer this call, as we know Rupert Downes often answered it. This occasion is in commemoration of one who was unafraid and not dismayed, but with strength and with good courage lived as he thought to be right—Rupert Major Downes, doctor of medicine, master of surgery, Companion of the Most Distinguished Order of St. Michael and St. George, Knight of Grace of the Venerable Order of the Hospital of St. John of Jerusalem, the oldest order of chivalry in existence. This country—this world—is in great need of such men, such courage and such chivalry.

> God give us men! The time demands
> Strong minds, great hearts, true faith and willing hands.
> Men whom the lust of office does not kill;
> Men whom the spoils of office cannot buy
> Men who possess opinions and a will;
> Men who have honour; men who will not lie;
> Men who can stand before a demagogue
> And damn his treacherous flatteries without winking;
> Tall men, sun-crowned, who live above the fog,
> In public duty and in private thinking.

RECTAL BLEEDING.[1]

By MERVYN SMITH,
Adelaide.

THIS PAPER is intended mainly to be read by younger practitioners, for it is largely a recapitulation of things which have been repeatedly discussed and contains little that is new. However, the subject is of sufficient importance to demand an airing from time to time, in order that various facts may be kept in their proper perspective. It is proposed to begin by considering the investigation of a case of rectal bleeding, and then to indicate the many causes of the condition which need to be kept in mind as differential diagnoses.

THE INVESTIGATION OF A CASE OF RECTAL BLEEDING.

The investigation follows the usual lines of eliciting a history and carrying out a clinical examination before proceeding to any special examinations. These include proctoscopy and sigmoidoscopy, and frequently X-ray examination.

The History.

Not often is it possible to make a definite diagnosis on the history alone, but such a history may be most helpful in orientation. At St. Mark's Hospital, London, where there are some 20,000 attendances in the out-patient department in a year, the history is adequately covered by the use of a pro-forma case sheet, which enables these large numbers to be handled. The headings on this pro-forma include: main complaint and duration; bleeding—with or between bowel actions; pain; prolapse; diarrhœa; constipation; and so on. Leading questions are often necessary, for we want to know a number of facts that are not likely to be volunteered. Thus we shall want the following information (Koop, 1956):

1. How much blood has been passed.

2. The colour of the blood, for on this it is possible to assess the proximity of the lesion to the anus, as well as the rapidity of the passage of blood. Bright red blood tends to indicate an origin in the rectum or lower part of the colon, although if blood is being lost rapidly from a higher lesion—as, for example, a Meckel's diverticulum—it may, by its very rapidity of loss, appear at the anus bright red. If the distance the blood has to travel to the anus is great,

[1] Read at a meeting of the South Australian Branch of the British Medical Association on September 26, 1957.

decomposition occurs, with alteration of its characteristics. This is seen at its maximum in the passing of black tarry motions associated with bleeding œsophageal varices, or a bleeding peptic ulcer.

3. Whether the blood is mixed with the stool, or on the surface of it. This again may give a lead to the level of origin, for in lesions of the colon blood tends to be intimately mixed with the motions, while streaking with blood on the surface of the stool indicates a lesion low in the rectum or in the anal canal. A detailed history such as this is more likely to be obtained from a parent regarding her infant's condition than from an adult patient, for the mother soon notices anything unusual in the child's pot, whereas it is by no means a common habit to look at one's own stools with such a critical eye.

4. The length of time for which the patient has noticed bleeding. With severe degrees of bleeding, it is common for the patient to present early for treatment. There is something alarming about hæmorrhage from an orifice, which is more likely to drive a patient to his doctor than a considerable amount of pain.

5. Whether the blood is passed before, during or after the bowel movement. Thus, blood may be noticed in the toilet at an unsuccessful visit, may be noticed on the tissue after a bowel action, or may be noticed first as a staining of the under-garments.

Clinical Examination.

Clinical examination implies a general examination of the patient, special attention being paid to abdominal palpation and, of course, a rectal examination. The latter should be preceded by an inspection of the anus with the anal margins spread out with the fingers, when a fissure may be seen, or the presence of hæmorrhoids noted. The gloved finger is then inserted, and any abnormal findings are recorded. While it is customary in most centres to carry out rectal examinations with the patient in the left lateral position, it should be observed that some authorities, notably Lawrence Abel in London, have repeatedly recommended that the right lateral position be used, the examination being made with the left index finger. Their contention is that in this position a growth in the sigmoid colon tends to fall down on to the examining finger; it is thus less likely to be missed than if it is tending to fall away from the finger with the patient lying on the opposite side (Abel, 1957).

Proctoscopy.

Probably the most convenient proctoscope to own is the Naunton Morgan type, which has a small light incorporated in the proximal part of the tube. However, proctoscopes without a light are satisfactory provided a suitable external light is available. The proctoscope with its obturator is inserted to its full length and the examination made as the istrument is withdrawn. A good view is obtained of the lower part of the rectum and of the anal canal, and such things as hæmorrhoids, fissures and new growths may be seen in this examination. Hæmorrhoids may not necessarily show on proctoscopy unless the patient is made to strain, whereupon the lax mucosa covering the pile prolapses into the tube.

Sigmoidoscopy.

First, the instrument: of the many types of sigmoidoscope on the market, one of the best is the Lloyd-Davies type. Two sizes of tube are available to fit a standard proximal-lighting unit. The smaller one, which has a diameter of 1·5 centimetres, is the one used for routine sigmoidoscopies, while the larger one, with a diameter of two centimetres, is reserved for use when anything needs to be done through it.

The illumination as supplied by the proximal light is quite adequate—I think almost as good as the distal-light instruments—and does not suffer the disadvantage of the latter in being easily obscured by fæces or blood.

Secondly, the position: two positions are in common use, the left lateral or Sims's position, and the knee-chest position. The latter is by far the better one, and should be used as a routine unless contraindicated as, for example, by hypertension, old age, arthritic hips, *etc.* In the knee-chest position the weight of intestines falls away from the pelvis, the rectum tends to straighten out a little, and it balloons with air. When the sigmoidoscope is inserted it is able to be passed with safety, as the lumen of the bowel is more apparent. In the lateral position it is necessary to distend the rectum with air from the bellows to demonstrate the lumen, and it is this pumping in of air which causes the patient discomfort. Again it should be added that Abel and his colleagues advocate that sigmoidoscopy be carried out in the right lateral position.

Thirdly, preparation of the patient: at St. Mark's Hospital it is considered better to carry out these examinations without preparation, as flecks of blood and mucus which can have great significance may be washed away by enemas and rectal wash-outs. The normal fæcal content of the bowel does not present any great problem as a rule. Such fæces, if solid, can be avoided with the instrument after a little practice, and if fluid, can be mopped up or aspirated with a sucker; thus not a great deal is gained by preparing the patient. This is the usual state of affairs. Sometimes, however, it is quite impossible to make an adequate examination without preparation, and in these cases the only thing to do is to have the patient return after an enema. The importance of sigmoidoscopy is evident when it is realized that 70% to 80% of all colonic lesions are within reach of the instrument. Therefore, it is well worth while persevering to get adequate penetration of the instrument, repeating the examination if necessary.

X-Ray Examination.

For regions above the reach of the sigmoidoscope, X-ray examination with the barium enema comes into its own. It cannot be emphasized too strongly, however, that the barium enema X-ray examination is not the complete answer in the investigation of these cases. Below about the 15-centimetre level the bony pelvis prevents adequate palpation by the radiologist, and lesions in this region will not show in the films. This procedure also has some limitations in the higher regions, for although it detects the well-developed growth, such a lesion in one of the flexures may be missed on occasion. In the case of the small, early carcinoma much care is required. In the words of Arnold Bachman of New York, "an extremely high index of suspicion is necessary" to pick up such small growths, and if the areas of irregularity are so slight as to be doubtful, reexamination should be carried out later (Bachman, 1955). The same applies to polypi, in which great care is required to demonstrate the lesion. As these are overshadowed by the dense barium of an ordinary barium enema, double-contrast air studies are necessary to demonstrate polypi, and to avoid false positive findings this implies a very edequate preparation of the bowel beforehand. Such studies are time-consuming, but are highly desirable if we are to reduce the incidence of colonic carcinoma by attacking the pre-malignant lesions.

Differential Diagnosis.

As we proceed with the investigation of a case of rectal bleeding—the diagnostic work-up as the Americans call it—it is as well to have some sort of list of possibilities in mind. Although lists of differential diagnoses may appear a little academic, it is necessary to present such a list at this stage to ensure that the diagnostic work-up is complete.

The first distinction must be made between general and local causes. In the case of systemic disease there is usually an associated loss of blood from other parts, and other features indicating a general disease are usually present. Milk allergy, drug idiosyncrasy, infections, and such blood conditions as the purpuras and leuchæmias are included under this heading.

Local causes may be located in the upper part of the gastro-intestinal tract, the small intestine, the large intestine or the anal canal.

The Upper Part of the Gastro-Intestinal Tract.

The mouth may be involved through the swallowing of blood, as from an epistaxis, or through a swallowed foreign body.

In the œsophagus, bleeding may result from the presence of varices, ulceration, trauma from a foreign body, new growths, *etc.* The stomach and duodenum may be the source of bleeding from peptic ulcer, gastritis or carcinoma.

In all these cases, blood is usually vomited as well, and as a rule this is the leading symptom, the melæna being merely incidental.

The Small Intestine.

Meckel's Diverticulum.

Meckel's diverticulum is said to occur in 2% of the population, and to give rise to symptoms in 15% to 20% of affected persons. It is the commonest developmental anomaly of the intestine, being the failure of complete obliteration of the vitello-intestinal duct. It may contain gastric mucosa, and gives rise to its chief complication, hæmorrhage, by virtue of peptic ulceration in the nearby small bowel mucosa. Bleeding from such a source may be massive, and may become evident at the anus by the passage of bright blood and clots.

Reduplication of Bowel.

In reduplication of bowel, hæmorrhage occurs as in a Meckel's diverticulum, since the anomalous segment often contains aberrant gastric mucosa.

Mesenteric Thrombosis, Volvulus and Intussusception.

Mesenteric thrombosis, volvulus and intussusception are grouped together since, although blood is passed *per rectum*, it is an incidental event, the abdominal symptoms predominating and usually dictating the treatment.

Regional Ileitis.

Regional ileitis may give rise to bleeding *per rectum*, but is more likely to present with other features, and is mentioned here only for completeness.

Polypi.

While polypi are usually thought of as large bowel phenomena, it is as well to remember that they do occur in the small bowel as well. Many writers have now recorded cases in which there was multiple polyposis of the small bowel associated with patches of pigmentation on the lips and buccal mucous membrane. Peutz appears to have been the first to draw attention to this interesting combination, and the syndrome is now known by his name.

The Large Intestine.

Carcinoma.

Carcinoma is by far the most important cause of bleeding from the colon. It is one of the most frequent of all forms of malignant disease, and is the condition we have to exclude beyond all doubt before dismissing a case of rectal bleeding as of no consequence. The symptoms vary with the level of the lesion in the colon, but bleeding is frequent and the blood is often dark in colour and accompanied by the passage of mucus. Alteration in bowel habit, fruitless calls to stool, and a feeling of pressure in the rectum may also be evident, while in the later stages symptoms include sleeplessness, wasting, loss of weight, and abdominal distension.

The importance of rectal bleeding as an early symptom of rectal carcinoma cannot be over-emphasized. Thus Gabriel found that it occurred as the main or as a subsidiary symptom in 79% of cases (Gabriel, 1949).

Diverticulitis.

While bleeding is not a common symptom of diverticulitis, it may give rise to a quite massive hæmorrhage if a blood vessel becomes eroded. Recently, Keith and Rini (1957), in America, have drawn attention to the importance of diverticula of the colon as the source of bleeding in a patient with severe rectal hæmorrhage, and consider this cause of massive melæna without hæmatemesis as possibly second only to peptic ulcer. However, the experience in this centre is that bleeding in a case of diverticulitis is more likely to be from a coexistent neoplasm. In his presidential address to the Section of Proctology of the Royal Society of Medicine, O. V. Lloyd-Davies (1953) referred to the difficulty in diagnosis between diverticulitis and carcinoma. He stated that the average age for intervention in diverticulitis is about 60 years, and since this is the average age for the development of carcinoma of the large bowel, difficulties must arise. In the Lloyd-Davies series of 57 patients with diverticulitis with complications, 11 had had bleeding from the rectum. In two of these the quantity of blood passed was alarming, and the patients were treated conservatively by transfusions. In the other nine cases, the decision to operate was influenced by the finding of blood on sigmoidoscopy, and in six of these nine, new growths were found associated with the area of diverticulitis; in two, carcinomata were recognized at laparotomy, in two malignant changes were found in adenomata, and in the other two simple adenomata were found. The radiologist has extreme difficulty in demonstrating anything but diverticulitis in an affected segment, and even at operation, because of the dense fibrosis and surrounding reaction, it may be equally difficult. Thus a case of diverticulitis in which bleeding occurs, or in which blood is observed at sigmoidoscopy, needs very special care in investigation.

Ulcerative Colitis.

Ulcerative colitis is a distressing condition, in which it is difficult to separate the psychogenic factor from the organic. It is manifest by frequent watery diarrhœa (often with the passage of blood and pus), tenesmus and loss of weight, and is sometimes accompanied by such manifestations as arthritis, pyoderma and anal fistulæ. Rupert Corbett (1945) gives a very clear description of the sigmoidoscopic appearance in the early case, and this description has not since been bettered:

> First the bowel is seen to be hyperæmic, and later there is œdema and thickening of the mucous membrane, which bleeds easily. A further step is the formation of miliary abscesses in the mucosa which rupture and result in ulcers resembling yellow spots scattered over the wall of the gut.

The sigmoidoscopic findings, although as a rule giving a very good clue to the diagnosis, may not give a good indication of the severity of the condition, and it is not uncommon to find wider involvement revealed on the X-ray films than one would have thought on sigmoidoscopy. While the early X-ray findings may be negative, later there is exhibited a rather fuzzy outline, with spotty variation in intensity of the barium because of ulceration, and later still a lack of haustration, with narrowing of the bowel and lack of flexibility. Bleeding takes place from the ulcerated mucosa, and may also occur in the later stages from the so-called pseudo-polypi found in this disease.

Polypi.

Polypi may occur in the colon or rectum as single entities, in multiple form, or as an hereditary disease. All these conditions are likely to undergo malignant degeneration; indeed, something like 15% of polypi show malignant change when first seen. Familial polyposis of the colon is a rare disease, which has been studied and described in great detail by Cuthbert Dukes (1952). In these cases the number of polypi may run into hundreds. So certain is it that malignant change will develop in one or more of these adenomata, that total colectomy is indicated with either ileo-rectal anastomosis after dealing with the rectal polypi, or establishment of a permanent ileostomy.

Of the commoner polypi as a cause of bleeding much more needs to be said. It has been stated that some 10% of people over the age of 40 years have colonic polypi, and bleeding occurs when these polypi reach about half an inch in diameter. Diagnosis is by sigmoidoscopy, barium enema, X-ray examination with air-contrast study, and laparotomy with direct endoscopic examination. The latter

method, that is the search for polypi by the operation of coloscopy, has been extensively studied by Michael Deddish at the Memorial Center in New York. He (Deddish, 1955) has remarked on the tendency for colonic polypi to be multiple, and because of the likelihood of malignant change ensuing in these lesions, he advocates searching the whole colon with a sigmoidoscope at operation. When a polypus has been removed through a colotomy incision after the usual five-day preparation of bowel, a sterile sigmoidoscope is introduced and passed to its full length in either direction. Further incisions are made to reintroduce the instrument so that the whole of the mucosal surface can be inspected. In no less than 48 of 103 patients with the pre-operative diagnosis of polypi of the colon, he was able to demonstrate lesions other than those detected radiographically.

Since a high proportion of carcinomata of the rectum and sigmoid colon commence in these adenomata, a good case has been made out for a routine annual sigmoidoscopy in all people over the age of 45 years. Abel (1957) is one who believes this to be highly desirable, and indeed it is probable that such a procedure would greatly reduce the incidence of carcinoma in this region. The main hope in reducing the incidence of cancer of the large bowel seems to lie in the detection of these early lesions, hence the importance of making a diagnosis at this stage. Bleeding which is coming from above the reach of a sigmoidoscope means laparotomy, whether X-ray examination has shown the presence of a polypus or not, and the practice of delaying surgery to watch the condition radiographically is not now considered justifiable.

Papilloma of the Rectum.

Papilloma of the rectum, the so-called "villous tumour", is an interesting one and like papilloma of the renal tract it is on the borderline between benign and malignant. It may reach a large size, gives rise to a severe degree of bleeding, and unless it is small, needs fairly radical treatment. Biopsy is not always reliable as a means of excluding malignancy, as the tumour may be benign in one part but have undergone malignant change in another.

Prolapse of the Rectum.

Although prolapse of the rectum seems to be a common condition amongst the elderly in England, my impression is that it is less common here. Bleeding takes place from the congested prolapsed mucosa, which in addition is liable to trauma and ulceration.

Granulomata.

Granulomatous conditions of the rectum include amœboma, tuberculoma and *lymphogranuloma inguinale*, and all are quite rare in this country. There are special tests which may be helpful in diagnosis, but such tests do little that a gloved finger and a sigmoidoscope cannot manage.

Endometriosis.

In endometriosis rectal pain and bleeding may occur during menstruation, and if this history is obtained the diagnosis is almost made. Sigmoidoscopy shows greyish-white elevated patches from submucous involvement, the bleeding actually taking place from a congested intact mucosa.

The Anal Canal.

Inserted Foreign Body.

Inserted foreign body needs little further comment. Many and varied are the objects which have been inserted into anal canals from time to time. A tumbler is stated to be not uncommon, and one of my colleagues once had occasion to deal with an electric light globe.

Fissure.

Fissure is among the commonest causes of bleeding from the anus in childhood, but ranks rather lower in the adult. In adults, the amount of bleeding is slight, and it is the severe pain and sphincter spasm that dominate the picture rather than the bleeding.

Hæmorrhoids.

Hæmorrhoids are the most common source of rectal bleeding, but it is of the utmost importance that they should not be accepted as the only cause. Any rectal bleeding warrants more investigation than a mere confimation that hæmorrhoids are present. All that bleeds in the rectum is not hæmorrhoidal; indeed the very presence of the hæmorrhoids may be due to obstruction of the venous return by a higher lesion. With first degree hæmorrhoids, bleeding occurs with defæcation, blood sometimes spurting out and discolouring the bowl. As the pressure between the sphincters and the passing stool eases, the bleeding stops. In the more severe degrees, however, when the pile remains prolapsed, bleeding may occur apart from defæcation. For the patient who presents with a history of passing bright blood, when nothing can be found on sigmoidoscopy apart from hæmorrhoids, I think a therapeutic test is warranted—that is, injection of the hæmorrhoids to see if the bleeding stops.

CONCLUSION.

A high proportion of patients with rectal bleeding suffer from some comparatively minor condition such as hæmorrhoids. In a smaller, but more important, group such bleeding is indicative of some serious lesion. It is necessary to know what disease process may be causing this symptom, and how to set about finding out this cause. The problem should be approached with carcinoma as a foremost consideration, and before the bleeding is dismissed as unimportant there must be certainty first that carcinoma has been excluded, and secondly, that the bleeding is not caused by some premalignant condition which is best dealt with at an early stage.

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SOME ANTHROPOMETRICAL VALUES OF WOMEN IN AUSTRALIA.

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IN 1926 the directors of Berlei, Ltd., a Sydney firm of manufacturers of foundation garments, were anxious to determine the distribution of figure types of Australian women. For this purpose some 26 measurements were made on some 5000 women. As a result, it was found possible to classify the figures into five types for corsetry purposes, and to construct a nomogram by which the type could be determined from three measurements—namely, hip, waist and bust circumferences. The directors thought these measurements, in the absence of any other published figures for Australia, might be of general anthropometrical interest, especially as they had received a number of requests for the figures. They therefore invited me to

Some Anthropometric Values of Women in Australia: Summary of Tables 1 to 20.

Table.	Character Measured.	Number Examined.	Units of Measurement.	Mean.	Standard Deviation.	Standard Error of the Mean.	Coefficient of Variation. (Percentage.)
1	Vertex height	5332	Inches.	63·43	2·33	0·03	4
2	Shoulder height	5271	Inches.	52·29	2·21	0·03	4
3	Bust height	5268	Inches.	44·89	2·16	0·03	5
4	Waist height	5278	Inches.	39·78	1·83	0·03	5
5	Abdominal prominence height	5233	Inches.	35·92	1·77	0·02	5
6	Thigh fold height	4807	Inches.	32·43	1·77	0·03	5
7	Height of posterior hip projection	5274	Inches.	31·83	1·58	0·02	5
8	Gluteal fold height	5100	Inches.	28·47	1·61	0·02	6
9	Bust circumference	5452	Inches.	34·65	3·60	0·05	10
10A	Waist circumference	5421	Inches.	28·47	3·56	0·05	13
10B	Waist circumference (sitting)	5245	Inches.	29·36	3·68	0·05	13
11	Abdominal prominence circumference	5030	Inches.	35·25	3·90	0·05	11
12	Hip circumference	5450	Inches.	40·09	3·20	0·04	8
13	Waist, lateral diameter	5332	Inches.	9·30	0·99	0·01	11
14	Antero-posterior diameter (abdominal prominence)	4996	Inches.	8·63	1·37	0·02	16
15	Hip (lateral diameter)	5313	Inches.	13·39	0·90	0·01	7
16	Waist projection	5329	Inches.	7·28	1·18	0·02	16
17	Bust projection	5257	Inches.	13·27	1·20	0·02	9
18	Maximum lateral diameter (hip)	5272	Inches.	15·06	1·80	0·02	12
19	Weight	5285	Pounds.	130·34	23·0	0·32	18
20	Age	5230	Years.	28·02	9·95	0·14	36

[1] The tables summarized here will be included in full in the reprints.

prepare them for publication, making available a grant to cover the expenses of machine tabulation from the original cards.

The Measurements.

The survey was carried out in the years 1926 to 1928. Attempts were made to ensure that the sample was representative of the Australian population; but it appears possible that the more athletic types of women were rather over-represented, since the measurements were carried out at seaside resorts and at factories. Suitable instructions were issued to those making the measurements, to ensure uniformity. All subjects were measured in bathing costume. All lengths were measured to the nearest half-inch and weights to the nearest pound. Weights and heights were measured with the subject barefoot. A specially ruled board was constructed so as to facilitate the measurement of heights and other lengths.

The Age Distribution of Women in the Sample.

The age distribution of women in the sample is given in Table I, to be published in the reprint to this paper. The survey was designed to consider only women at ages 15 to 65 years. The sample finally contained rather more young women between the ages of 15 and 24 years—namely, 50% of women above the age of 15 years—than did the Australian population at the time of the Australian census of 1933—namely, 25%. This is of some importance when soft-tissue measurements are being considered, but is of much less importance for the bony measurements.

Summary of Survey Measurements.

Height.

All subjects were measured in their bathing costume without shoes or other footwear, standing in the special measuring device, which consisted of a ruled board attached to a platform with appropriate arrangements for measuring height. The height was taken to the nearest half-inch. In order to give these results in a more manageable form, the resulting classes have been combined into broader classes with a class interval of one inch. Those heights recorded as 62 and 62½ inches, for example, have been classed together as the class 61⅞ to 62¾ inches in a table, which is given in a supplement to the reprints of this paper as Table II. The range of heights was from 52 to 71 inches; the mean was 63·43 inches, the standard deviation 2·33 inches, and the standard error of the mean 0·03 inch. These measurements are of the same order as those obtained in the American survey of O'Brien and Shelton (1941). We shall find it convenient to make most of our comparisons with the measurements given by these workers, which in general are remarkably close to those in the present series.

Shoulder Height.

The shoulder height was taken with the subject barefoot on the measuring stand. A T-square arrangement then enabled the height to be read off the scale to the nearest half-inch. The shoulder height was defined as the height of the upper aspect of the right acromion process. The results are given in Table III; the mean shoulder height was 52·29 inches, the standard deviation 2·21 inches, and the standard error of the mean 0·03 inch. Extreme measurements recorded were 41 inches and sixty inches. The American survey does not give shoulder height, but only a "cervicale" height—namely, the height to the posterior prominence of the fourth cervical spine.

The Height of the Bust.

The instruction for this measurement was to note the height of the greatest prominence of the bust with the aid of the adjustable pointer of the measuring frame. The mean was 44·89 inches, the standard deviation 2·16 inches, and the standard error of the mean 0·03 inch. Once again these measurements approximated closely to the American figures of O'Brien and Shelton (1941).

The Height of the Waist.

The position of the waist was defined in this survey as where the pointer touched the "innermost point of the waist at back", so that it might be taken as being opposite the spine of the fourth lumbar vertebra. The mean was 39·78 inches, the standard deviation 1·83 inches, and the standard error of the mean 0·025 inch. In the American survey the waist level is defined by palpating the lower margin of the lowest rib, and it is noted that this coincides with the narrowest part of the waist. The American mean was 40·05 inches.

The Height of the Abdominal Prominence.

The height of the abdominal prominence was defined by placing the vertical scale on the centre line of the base of the board and moving it towards the subject until it just touched the most prominent part of the abdomen. The mean height of the abdominal prominence was 35·92 inches, the standard deviation 1·77 inches, and the standard error of the mean 0·024 inch. In the American survey the area of greatest abdominal prominence was estimated by eye and marked, and then the height was measured. Larger errors would be expected in measuring this height, as the angle between the surface and the vertical will

be changing only slowly. Nevertheless, the standard deviation is not larger than those of the other height measurements, and the present survey and the American agree quite closely, the American mean being 36·27 inches.

The Height to the Thigh Fold.

The thigh fold was defined as the line of junction between the trunk and the thigh when the subject sits. In anatomical terms, it is evidently the line of Poupart's ligament. Instructions were given to mark the line of junction with chalk and then place the vertical scale at a point three inches from the mid-line and read off the height. The mean was 32·43 inches, the standard deviation 1·77 inches, and the standard error of the mean 0·025 inch. There was no comparable measurement in the American series.

The Height of the Posterior Hip Projection.

The height of the posterior hip projection was obtained by placing the straight calipers against the subject's greatest posterior projection and reading the height off against the vertical scale. The mean height was 31·83 inches, the standard deviation 1·58 inches, and the standard error of the mean 0·022 inch. There was no comparable measurement in the American survey, in which hip height was defined as the height of the most prominent part of the trochanter.

The Gluteal Fold.

The gluteal fold was defined in the usual way as the junction of the gluteal (or buttock) muscle with the posterior aspect of the thigh. The mean was 28·47 inches, the standard deviation 1·61 inches, and the standard error of the mean 0·023 inch. The American survey used, instead of this height, "crotch height", which measures the height of the lower border of the ischium. The mean for this measurement was 28·53 inches, so that once again agreement is satisfactory.

Bust Circumference.

The bust circumference was measured at the level of its maximum. The mean was 34·65 inches, the standard deviation 3·60 inches, and the standard error of the mean 0·048 inch. The American mean was 35·62 inches and the standard deviation 3·87 inches. It might be expected that in general the American soft-tissue measurements would be higher than the Australian, since the mean of the American weights is higher.

The Waist Circumference.

The waist was measured at the level previously defined as being at waist level—namely, at the level of the maximum indentation of the lumbar part of the spine. The mean waist circumference was 28·47 inches, the standard deviation 3·56 inches, and the standard error of the mean 0·048 inch. The mean American waist circumference was 29·15 inches and the standard deviation was 4·45 inches. Again, this mean is slightly greater than the Australian.

Waist Circumference (Sitting).

The waist circumference was again measured with the subject sitting. The mean was now 29·36 inches, the standard deviation 3·68 inches, and the standard error of the mean 0·05 inch. This measurement corresponds to the abdominal extension girth of the American survey, for which the mean was 36·20 inches and standard deviation 4·71 inches. The circumference was measured at the level of the abdominal prominence. The mean was 35·25 inches, the standard deviation 3·90 inches and the standard error of the mean 0·05 inch.

Hip Circumference.

The hip circumference was measured with the tape horizontal and the lower edge at the level of the greater posterior projection. The mean was 38·84 inches, the standard deviation 3·18 inches, and the standard error of the mean 0·043 inch. These figures, once again, are close to the American mean of 38·82 inches and standard deviation of 3·34 inches.

The Lateral Diameter of the Waist.

The lateral diameter of the waist was measured at the same height as the waist circumference. The mean was 9·30 inches and standard deviation 0·99 inch. The standard error of the mean was 0·014 inch. There was no corresponding measurement in the American series.

The Antero-Posterior Diameter at the Abdominal Prominence.

The mean antero-posterior diameter at the level of the abdominal prominence was 8·63 inches, the standard deviation being 1·37 inches and the standard error of the mean 0·019 inch. There was no corresponding measurement in the American series.

The Lateral Hip Diameter.

The lateral hip diameter was measured at the same level as the hip circumference. The mean was 13·39 inches and the standard deviation 0·90 inch. The standard error of the mean was 0·012 inch. There was no comparable American figure.

The Waist Diameter.

The waist diameter is the antero-posterior diameter of the waist taken at the same level as the waist circumference. The mean was 7·28 inches, the standard deviation 1·18 inches and the standard error of the mean 0·016 inch.

The Bust Projection.

The bust projection is defined as the (maximum) antero-posterior measurement at the level of the bust (measured from the board with the subject standing). The mean was 13·02 inches, the standard deviation 1·19 inches, and the standard error of the mean 0·017 inch.

The Maximum Lateral Hip Diameter.

The maximum lateral hip diameter was measured with the subject standing. The mean was 15·06 inches, the standard deviation 1·80 inches, and the standard error of the mean 0·02 inch.

Weight.

The subject was weighed in swimming costume without shoes. The mean was 130·34 pounds, the standard deviation 23·0 pounds, and the standard error of the mean 0·32 pound. The corresponding American mean was 133·5 pounds and the standard deviation 26·0 pounds. Thus the women of the American survey were on an average about three pounds heavier than the Australian women, even though the average age of the Australian women would be less.

Discussion.

Anthropometrical surveys of Australian adults have been few. The only survey of interest to us here has been made by Dr. J. M. Woodhill (1952), who gives normal weights by height for women of child-bearing age. She gives the means for each State, which range from 63·2 inches in Tasmania to 63·6 inches in Queensland, and suggests that the differences may have a basis in the dosage, received at ground level, of ultra-violet light, growth being favoured by the larger doses in areas closer to the equator. In Dr. Woodhill's series the mean height for Australian women was 63·3, identical with that obtained in this inquiry. As has already been mentioned, the figures obtained in this inquiry are very close to the American figures for O'Brien and Shelton (1941), wherever the comparison can be made. All three surveys give heights in excess of the English heights of Kemsley (1950) for adult women—61·9 inches. The mean English weight was 119·5 pounds, below both the figures in the present series and the American figures.

A table of correlations of heights and weights and some other measurements will be given in the reprints of this paper, and also detailed distributions for all the measurements discussed in this paper and summarized in Table II.

Acknowledgements.

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THORACIC SURGERY: A FOLLOW-UP STUDY OF OVER 500 TUBERCULOUS PATIENTS.

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THE purpose of this paper is to evaluate the results of treatment of 516 patients suffering from pulmonary tuberculosis, who were treated surgically at the Bodington Chest Hospital between July, 1951, and July, 1956, after the opening of the Thoracic Surgical Unit early in 1951. A total of nearly 700 major thoracic operations was performed on these patients. Of the patients, 316, or 60%, have been followed up from 2·5 to 5·7 years; in the more recent cases there is a minimum follow-up period of ten months. A number of non-tuberculosis problems are not included in the review. The operative complications, deaths, relapses and final results are listed for comparison and discussed.

The 516 operations performed were as follows: thoracoplasty 114, plombage 15, pneumonectomy 19, lobectomy 135, monosegmental resection 66, multiple resection 167.

The resection of one segment or of a single wedge is included in the heading "monosegmental"; and "multiple resection" is here used comprehensively to include the excision of more than one segment, more than one lobe, a few wedges, or a combination of any of these. The average stay in hospital per patient was found to be 239 days, but this average was slightly increased by those patients (28) who had bilateral operations. The tendency now is to shorten the period of institutional treatment.

One hundred and fifty-five patients (29·5%) had had previous medical treatment which failed, or which was only partially successful. This consisted of bed rest, collapse therapy or chemotherapy. Any combination of these was used for a minimum period of one year and in some instances for as long as twelve years, with intervals between several periods of treatment.

Thoracoplasty.

In this series no complications of thoracoplasty were encountered, but there were three post-operative deaths, and two of these were instances of bilateral surgery. Four deaths from other causes were recorded later. In 79% of the patients the tuberculous process has been arrested, and all but three are doing full work. Golebiowski (1957) in a similar review obtained good or satisfactory results in 82% of the thoracoplasty group.

Plombage.

No post-operative complications were seen in this short series of 15 cases in which plombage was used, though there was one death from pulmonary embolism. However, the results were discouraging, as six of the remaining patients were considered "surgical failures"—*i.e.*, they still had acid-fast bacilli in their sputum and/or a persisting cavity. These cavities have usually taken a crescentic shape situated beneath the plomb. Hansen (1954) reported an arrested condition in 63% of the plombage series; and Weiss *et alii* (1954) obtained satisfactory results in 80·8%.

Pneumonectomy.

The complications in the pneumonectomy group were two cases of broncho-pleural fistula and one case of empyema. There were three post-operative deaths, and one other death was recorded later when the patient was undergoing a further operation for a broncho-pleural fistula one year after the pneumonectomy. In over half of the remaining patients the condition has been arrested and they are in full occupation. One other patient is also well, but is still in hospital because of an œsophago-cutaneous fistula following an empyema; this is closing in satisfactorily.

Resection.

In this review there were no deaths in the monosegmental group of resections, and only two complications—one broncho-pleural fistula and one case of empyema. There were two deaths in each of the lobectomy and multiple resection groups. However, the latter group has given rise to the greatest number of complications—*viz.*, seven broncho-pleural fistulæ, six cases of empyema and one case of clot retention. In the lobectomy group there were two cases of broncho-pleural fistula and two of empyema.

Complications.

Broncho-pleural fistula, major or minor, was the commonest type of complication encountered in most reviews. Ramirez Reyes *et alii* (1955) found that it occurred most often in their lobectomy group. In the present series the number of patients who developed fistulæ was 12 (2·3%), and seven of these were in the multiple resection group. This is attributed to the more extensive lung surface usually involved in this operation. Empyema was next on the list of complications, and this appeared to be nearly always associated with a broncho-pleural fistula. Baird (1955) reported an empyema incidence of 2·3%, Thompson *et alii* (1954) 1·9%, Golebiowski (1957) 2·3%; and in the present study empyema developed in 10 cases, an incidence of 1·9%. Six of these occurred in the multiple resection group. The total number of post-operative complications in this series was 23, and over 50% of these followed multiple resection.

At the time of follow-up there were 15 cases of spread or reactivation of disease, an incidence of 2·9%; these patients presented either with radiological evidence of deterioration or with acid-fast bacilli in their sputum. All these patients had moderate to advanced disease, and over half of them had had little or no chemotherapy previous to or after the time of the operation. After a further period of treatment in or out of hospital, eight of these patients have since had their condition arrested and are well and working. Brown *et alii* (1956) had a spread or reactivation rate of 7·5% in their series, and Thompson *et alii* (1954) had an incidence of 5·4%.

The post-operative mortality rate in this series was 2·1%; nine other patients have since died from causes unrelated to tuberculosis.

The long-term results in the present study are shown in Table I. Of the patients, 83% have had their disease arrested and are in full employment; 3·5% are also well and have commenced part-time or light work; and 3·3% are still in hospital, or have "positive" sputum, or are incapacitated as a result of their tuberculosis and/or surgery. A comparison of these results with those recorded by a few other writers is seen in Table II. A number of patients (30) have not been traced, either because they have changed several places of residence, or because they have gone abroad. When last seen they were quite well.

TABLE I.
Morbidity, Mortality, Present State of Activity.

Type of Operation.	Number of Patients.	Complications Requiring Active Treatment.			Post-Operative Deaths.	Present State of Activity.			Not Traced.
		Broncho-pleural Fistula.	Empyema.	Others.		Disease Arrested, Full Work.	Disease Arrested, Part Work.	Active Disease or Incapacity.	
Thoracoplasty	114	—	—	—	3	87	3	5	12
Plombage	15	—	—	—	1	5	2	7	—
Pneumonectomy	19	2	1	—	3	10	1	1	3
Lobectomy	135	2	2	—	2	123	3	1	4
Monosegmental resection	66	1	1	—	—	60	3	2	1
Multiple resection	167	7	6	1	2	146	6	1	10
Total	516	12	10	1	11	431	18	17	30

Discussion.

Though the operation of resection has gained much popularity, the presence of advanced bilateral disease and the older age group of patients often present indications for thoracoplasty. The results of this operation in the present review were satisfactory, and modern surgical techniques and physiotherapy have eliminated many deformities seen in the past.

In many centres plombage is being abandoned in favour of other surgical measures, mainly because of the high percentage of failures. In this series two-fifths of the patients still have "positive" sputum or a persisting cavity. However, these results do not reflect on the operation itself, as most of these patients were unfit for other types of surgery.

As is shown in Table I, the mortality from pneumonectomy was relatively high, as has been the experience in many thoracic units. Whole lung resection is usually carried out as a life-saving measure, or in cases of destroyed lung following long-standing disease. A long period of intensive chemotherapy before and after operation is given whenever possible, as this is considered to diminish greatly the risk of post-operative complications, especially the reactivation of contralateral disease.

In this survey experience with the monosegmental group of resections has been most encouraging. There were only two complications and no deaths. However, in the lobectomy and multiple resection groups, there were two deaths in each section and a total of 18 complications. These complications can be reduced in some cases by resorting to an associated partial thoracoplasty, or in the case of some persisting air spaces by penumoperitoneum treatment, to hasten space closure.

In the last ten years or so the progress of thoracic surgery has been considerable, and the results published from various centres have been keeping pace with this advance. Even so, the present surgical techniques and chemotherapeutic agents do not answer all the problems of tuberculosis. It is well known that one class of patients cannot have surgery either because of the extent of their disease or because of some other associated condition. Another group of patients cannot benefit fully from the present antimicrobials, either because of hypersensitivity of the patient concerned, or because of the harbouring of a resistant strain of bacillus.

Such problem patients may benefit (*a*) by the discovery of other more powerful tuberculostatic agents, or (*b*) by surgeons undertaking more salvage-type surgery. Glick (1956) mentioned the risks involved in dealing with salvage patients, many of whom have been managed conservatively for several years: "Since the outlook for these patients is otherwise hopeless, the effort and risk are justified." It is now realized that chest units all over the world will be encountering more and more of these cases in the future.

Two such patients (not included in this study) were recently operated on at this hospital. They had previously both been considered to have chronic disease, too far advanced for surgery or for any optimistic hopes from chemotherapy. They had been in hospital for ten and nine years respectively. A third patient, one in whom plombage had failed, had a persisting cavity, which was located through an approach in the axilla; the cavity was opened and drained, and it is now being periodically packed under cover of systemically as well as locally administered antibiotics. In this case disease in other areas precluded other types of surgery.

Salvage surgery is made possible only by modern technique, by high standards of anæsthesia, and by the use of the intermittent positive pressure breathing apparatus. The last-mentioned can be life-saving in a post-operative

TABLE II.
Follow-up Results from Various Reports.

Authors.	Number of Cases.	Period.	Present State (Percentage).			Post-Operative Mortality. (Percentage.)
			Well, Full Work.	Well, Part Work.	Active Disease or Incapacity.	
Thompson *et alii* (1954)	259	1948–1953	61·7	26·2	—	1·8
Kerland *et alii* (1955)	285	1949	69·7	20·9	8·0	Nil
Brown *et alii* (1956)	226	1949–1953	80·5	—	6·6	1·7
Kalqvist (1956)[1]	36	1949–1954	55·5	22·2	13·0	Nil
Tedesco (1956)	34	1947–1948	79·0	—	8·8	8·8
Billimoria (1956)	71	1949–1955	74·0	18·0	—	4·2
Corpe *et alii* (1956)	182	1951–1954	58·2	—	4·3	1·1
Amoruso (1955)	135	1952–1954	97·0[2]	—	—	0·7
Baird (1955)	127	1953–1955	96·8[2]	—	—	2·3
Golebiowski (1957)[3]	425	1949–1953	78·1	—	7·7	2·8
Present series[3]	516	1951–1956	83·5	3·5	3·3	2·1

[1] Dealt with older age group of patients.

[2] These include most major thoracic surgical procedures.

[3] These figures show an arrested condition, the working ability not being stated.

emergency. The results from salvage-type surgery may not prove as spectacular as those published so far; it will, nevertheless, be one further step towards helping the tuberculous patient.

Summary.

1. Five hundred and sixteen patients treated surgically since July, 1951, are reviewed. The follow-up period is from 10 months to 5·7 years.

2. The commonest complications, as with similar studies, were broncho-pleural fistula and empyema. The total number of complications was 23, an incidence of 4·4%, and over half of these occurred in the multiple resection group.

3. In 83·5% of the patients the condition is now arrested and they are in full work; a smaller number (18) are also well and doing part-time or light work; in 3·3% surgery is considered to have failed. Twenty patients were dead at the time of review, but the actual post-operative mortality rate was 2·1%. A number (5·8%) have not been traced, but when last examined were well.

4. It is suggested that chronic advanced cases will feature more prominently in the future. Newer antibiotics and salvage-type surgery may help some of these patients.

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Addendum.

Since the end of the period covering the foregoing review of cases, 60 other patients suffering from pulmonary tuberculosis have been treated surgically. The various operations were divided as follows: thoracoplasty 9, pneumonectomy 2, lobectomy 11, monosegmental resection 14, multiple resection 20, salvage-type surgery 4.

There were three deaths, two of these being in bad risk cases. One patient died from pulmonary œdema following pneumonectomy; the second, a patient with a previous history of poliomyelitis with bulbar involvement, died from pulmonary œdema following multiple resection; and the third, a patient who had been a bed-ridden respiratory cripple for many years, died from intrapulmonary hæmorrhage many weeks after a cavernostomy.

A SANITARY BED.

By F. W. KNOWLES,
Brisbane.

IT appears to have been taken for granted that our infants require napkins (or diapers) to receive their urine and fæces, and that they are thus obliged to spend a good part of early life poulticed, so to speak, with their excretory products. Often, especially if these napkins are not frequently changed or well washed, distressing dermatitis of the napkin area is apt to occur.

In recent years a new approach to the problem of infant sanitation has become possible by the development of synthetic "plastic" materials and of synthetic textile fibres. Instead of providing absorbent napkins, which become uncomfortable and even irritating when moist, we can now accommodate infants in non-absorbent yet aerated materials and provide for automatic drainage of urine. An example of this new method is shown in the illustrations (Figures I to III).

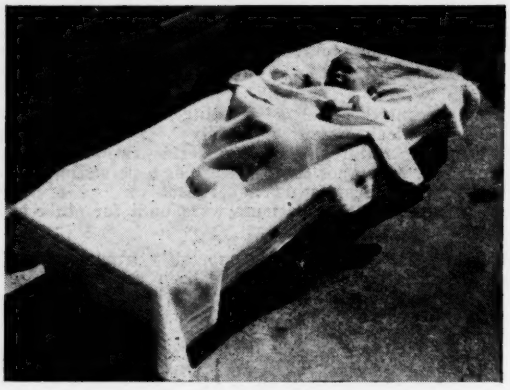

FIGURE I.

Figure I illustrates an infant in a sanitary bed covered with a top sheet, on the under-surface of which a layer of microporous polyvinyl chloride film is secured. (Ideally, the top sheet should consist simply of a large sheet of this microporous film; but as the latter has been obtainable so

FIGURE II.

far only with a maximum width of 10·5 inches, a strip of this narrow material was sewn under the central area of a nylon top sheet.) This microporous film is not easily wetted, and yet feels pleasant to the skin like a good textile material. It reflects any urine downwards onto a fine nylon net on which the infant lies.

Figure II shows the bed with coverings removed, and the infant—who wears only a short jacket—lying on the nylon net, which has a mesh of 220 per square inch. The passage of urine from the net into a receptacle below is accelerated by a number of small cotton wicks, which are attached to the net in its central area; each wick is weighted with a bead to keep it directed downwards. Any urine that does not fall through the meshes of the net immediately is drawn from the relatively water-repelling nylon to the relatively water-attracting cotton, and runs down the wicks to drop into the tray.

Figure III illustrates the construction of this sanitary bed. An open box contains a tray to receive urine. At the foot end, the box contains an electric heating unit, which compensates for the cooling effect of accommodating the infant without clothing on the lower part of the trunk and lower limbs, and without a mattress. This unit consists of two 30-watt heaters and a thermostatic switch set to give a temperature of 80° to 85° F. (In warm summer weather or in a well-heated room, this electric heating is unnecessary.) The frame across which the nylon net is stretched is also seen in Figure III; it has been provided with turn-buttons with which the top sheet or blanket may be secured.

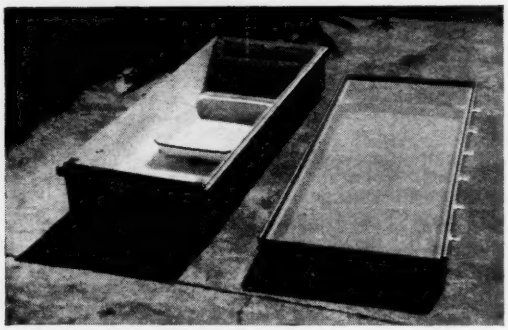

FIGURE III.

Such a sanitary bed could, of course, be built into a conventional style of infant's cot, where it would replace the mattress.

Urine drainage is satisfactory with male as well as with female infants, irrespective of whether they lie prone or supine. Fæcal soiling of the nylon net and of the polyvinyl chloride film is easily removed, and after being rinsed and dried with a towel, the sanitary bed is immediately ready for use again.

Though first thought of only as an article of general utility, to reduce the labour of napkin washing and improve infant comfort, such a bed may be useful in the prevention and treatment of napkin rashes, and in the pædiatrician's investigations of urinary function. Unsterile urine specimens are always available from the tray of the sanitary bed, and it is possible to study urinary output and frequency and times of micturition.

A larger bed of this type, designed for adults, might be of value in nursing bedridden incontinent patients, and in the prevention and treatment of bedsores.

Acknowledgements.

The microporous polyvinyl chloride film used in this sanitary bed was supplied by T. J. Smith & Nephew, Limited, being the material used in the manufacture of their "Airstrip" dressings. The nylon net was an "open construction nylon net without elastic", supplied by Lastonet Products, Limited.

Reports of Cases.

DEATH FROM CHLORPROMAZINE POISONING.

By I. S. WALLMAN, M.B., M.R.A.C.P., D.C.H.,
Perth.

SEVERAL REPORTS have appeared of the toxic effects of chlorpromazine, the majority referring to the use of the drug over comparatively long periods. The most important are jaundice of an obstructive type and neutropenia amounting at times to complete agranulocytosis. Less severe side effects are postural hypotension, dryness of the mouth, urticarial rash, constipation, frequency of micturition and convulsions. In this group the symptoms are temporary, and cease when the dose is reduced or the drug stopped.

No deaths due to actual overdosage have yet been reported, although there have been reports of coma produced as a result of ingestion of large quantities. Vallat and Lepetit reported the case of a woman with a psychosis who took 52 tablets with suicidal intent. She became deeply comatose, her blood pressure was unrecordable and her tendon reflexes were absent. The period of coma lasted five hours, after which she made a complete recovery.

It is the purpose of this paper to record the death of a girl, aged four years, following the ingestion of approximately 350 milligrammes of chlorpromazine.

Clinical Record.

A female child, aged four years, was noticed to be flushed and rather drowsy at 5.30 p.m. on March 23, 1957. Her father thought she looked "drugged", and it was recalled that three hours earlier she had been playing with her mother's handbag, which contained a bottle of chlorpromazine tablets; 14 tablets were missing from this bottle. At 6 p.m. she was brought to hospital, where a stomach washout was performed. She was drowsy at the time, but struggled vigorously during this procedure.

At 7.55 p.m. she was deeply stuporose and pale, and responded only to painful stimuli. The pupils were pinpoint in size and did not react to light. He respirations were normal, her blood pressure was 110/60 millimetres of mercury, and her pulse rate was 100 per minute.

At 8.35 p.m. the respirations became slower and sighing in type. At 8.50 p.m. some blood-stained fluid ran from her nose and mouth, spontaneous breathing ceased and she became cyanosed. The pharynx was aspirated, an endotracheal tube was passed, and artificial respiration was commenced by means of intermittent positive-pressure administration of oxygen. At this time she was completely comatose, and her pupils did not react to light.

For five hours she remained in this state, her colour being maintained by artificial respiration. Her blood pressure and pulse rate remained constant (see Table I); her temperature fell to 92° F., and no attempt was made to raise this.

At 2 a.m. there was slight twitching of one arm, and this movement gradually spread to other parts, mainly the legs and shoulders. The deep tendon reflexes returned at 2.45 a.m.

Frequent catheterization was necessary, and every two hours approximately 10 ounces of urine, of specific gravity 0·1010, was obtained. Intravenous drip therapy was started at 12 midday.

The movements gradually increased, and at 12.30 p.m. the child began to have spasmodic convulsive movements of her arms and shoulders with pinrolling movements of the fingers and thumbs.

At 2.30 p.m. irregular gasping respirations returned, and by 3 p.m. she was able to maintain normal colour for two or three minutes without assistance. At this time her systolic blood pressure suddenly dropped to 70 millimetres of mercury, and in view of some dehydration the rate of

TABLE I.

Time.	Remarks.	Deep Reflexes.	Pupils.	Blood Pressure. (Millimetres of Mercury.)	Pulse Rate per Minute.	Urine. (Ounces.)	Temperature. (Degrees Fahrenheit.)
March 23:							
3.30 p.m.	Ingestion of approximately 350 milligrammes of chlorpromazine.	—	—	—	—	—	—
5.30 p.m.	Drowsy, flushed.	—	—	—	—	—	—
6.20 p.m.	Stomach washout—struggled during procedure.	—	—	—	—	—	—
7.55 p.m.	Deeply stuporose; response to painful stimuli.	Present.	Pinpoint.	110/80	110	—	97
8.45 p.m.	Respirations irregular, gasping.	—	Dilated.	110/65	112	—	96
8.55 p.m.	Respirations ceased.	Absent.	—	—	—	—	—
11.45 p.m.	Complete coma.	Absent.	Unreacting.	130/120	104	10	95
March 24:							
1.30 a.m.	——	—	Unreacting.	—	—	10	—
4.00 a.m.	Slight twitching of one arm.	Absent.	Unreacting.	130/120	130	10	94
4.45 a.m.	Tendon reflexes returned.	Present.	Unreacting.	115/100	108	9	94
5.30 a.m.	Movement of left foot.	Present.	Unreacting.	110/100	104	5	92
8.00 a.m.	Increasing movements of arms and legs.	Present.	Unreacting.	100/80	120	17	94
11.0 a.m.	——	—	Unreacting.	—	—	12	—
12.0 midday	Intravenous drip therapy begun.	Present.	Unreacting.	120/110	128	—	96
2.00 p.m.	Sweating; spasmodic twitching of arms and shoulders; irregular gasping.	—	Unreacting.	124/116	132	5	—
3.00 p.m.	Condition deteriorated; rate of intravenous fluid therapy increased.	—	Unreacting.	70/0	124	—	—
3.45 p.m.	Death.	—	—	—	—	—	—

the intravenous drip administration of fluid was increased. However, her condition deteriorated, repeated aspiration of fluid from the endotracheal tube was necessary, and she eventually died at 3.45 p.m. A large quantity of blood-stained, frothy fluid poured out from the air passages at the time of her death.

Post-mortem examination revealed congestion of the surface vessels of the brain. A small subarachnoid hæmorrhage was present around the pons and cerebellum. The heart was normal apart from a small petechial hæmorrhage on the surface. The lungs were very œdematous, and there was blood-stained fluid in the bronchi. Examination of sections of the heart, liver and kidney revealed some congestion, and there was some parenchymatous swelling of the liver cells. Chlorpromazine was detected in the stomach contents, and a trace was detected in the blood.

Discussion.

The toxic effects of the chlorpromazine were apparent within three hours of ingestion, and by six hours the child had passed from a state of stupor with pinpoint pupils to complete coma, with dilated unreacting pupils, absence of reflexes and respiratory arrest.

One of the striking features of this case was the profuse polyuria which occurred, 80 ounces of urine being passed in 16 hours. The duration of complete coma was five hours, after which spasmodic movements of the limbs returned, and it was not until eight hours later that gasping respiration occurred.

Hypothermia, a common feature in the literature on chlorpromazine poisoning, was present in this case, the temperature falling to a minimum of 92° F. This gradually rose as the depth of coma decreased.

Hypotension did not occur until shortly before death, and it is questionable whether this was a direct result of the chlorpromazine. It may have been related to the dehydration and the prolonged artificial respiration. The intermittent spasm of the arms and shoulders was very striking in the last few hours, being more like an athetotic than an epileptiform movement. The excessive amount of fluid given intravenously after the child's collapse probably contributed to her death. No analeptics were given.

Now that chlorpromazine is being used for a wide variety of conditions, it is possible that more cases of poisoning may be seen. In view of the experience of this case, it is suggested that whenever possible the patient should be nursed in a hospital where a mechanical respirator is available. Also, special attention should be paid to the fluid balance, because the polyuria may be responsible for considerable fluid loss.

Although "Daptazole" and "Megimide" are said to be specific for barbiturate intoxication, a trial of these drugs may be worth while.

Summary.

The death of a girl, aged four years, from chlorpromazine poisoning is recorded. The main effects were drowsiness followed by coma, respiratory arrest, polyuria and hypothermia. Death occurred 25 hours after ingestion of the drug.

Reference.

VALLAT, J. N., and LEPETIT (1955), "Poisoning with Chlorpromazine in Attempted Suicide", *Presse méd.*, 62: 752.

Addendum.

Since this was written, a case of chlorpromazine poisoning has been reported by Sachs, in which depression of respiration was corrected by the use of nalorphine.

Reviews.

The Secret of Serenity. By Gordon Powell; 1957. London: Hodder and Stoughton. 7¼" x 5", pp. 128. Price: 7s. 6d. (English).

PROBABLY at no time has serenity been more feverishly sought than at the present. Striking testimony to the truth of this statement is provided by the quantities of sedatives ingested by anxious and fearful people, and the constantly increasing number of "tranquillizers" being introduced. No drug or combination of drugs as a sole therapeutic measure can have any permanent effect, though indeed drugs have a most important role. But the great need is for a change to be wrought in the person himself, so that the serenity he seeks comes from within, and is not imposed as a brittle crust from without. To help a troubled and tense patient to achieve inward peace is no easy task. A wise and patient family doctor can do a great deal, as some recent papers in this Journal have shown. If the disorder is beyond him, the psychiatrist comes into the picture. In many cases a minister of religion with appropriate experience can be of real help, as is being realized more and more. The Reverend Gordon Powell has had a great deal of experience, and has written several valuable books on such subjects. His latest, "The Secret of Serenity", is dedicated "to colleagues who have striven with me to bring serenity into many lives tortured by tension . . .", and is written for such distressed people. The keynote of the book is "acceptance", in a positive and constructive sense, not one of mere passive resignation, and it contains the following 12 chapters: "Accepting the Past", "Accepting the Present", "Accepting the Future", "Accepting Ourselves", "Accepting People", "Accepting Second Place", "Accepting Liberty", "Accepting Guidance", "Accepting Power Over Sin", "Accepting God's World", "Accepting Christ", "Pass It On". All those who find themselves called upon at times to undertake counsel-

ling in the circumstances outlined earlier would benefit from reading this book. We venture to think also that by being placed in the hands of patients, it would in a great many cases prove a competent member of the therapeutic team.

Parasitology (Protozoology and Helminthology) in Relation to Clinical Medicine. By K. D. Chatterjee, M.D.; 1957. Calcutta: Published by the author, distributed by Messrs. S. Bhattacharyya and Company, 50-2 Dharamatala Street, Calcutta 13. 9¾" × 6½", pp. 194, with 76 illustrations. Price: Rs. 12.50 in India.

THE author states in his preface that this volume has been developed from his previous book, "Human Parasites and Parasitic Diseases". "Developed" seems hardly the right word, since it usually carries the implication of increase in stature and complexity. Here we have just the opposite—the reduction of a 700-page volume weighing nearly six pounds to a mere 180 pages, turning the scale at little more than a pound. This has been achieved by judicious selection and pruning, and the result is a very successful summary for which future generations of students and teachers should be grateful. This handy volume will be particularly welcomed by lecturers on parasitology to groups whose interest in the subject does not, for the most part, extend beyond the examination date, since one of the first questions at the commencement of a course entails the recommendation of text-books. For all but the specialist the current books are too large and expensive; most of them include a section on entomology, which occupies nearly half its pages, and for the study of which separate text-books are usually recommended.

As the title indicates, the book is designed for purely practical ends in dealing with the bare essentials of medical protozoology and helminthology, and thus it will be useful as a quick reference manual for practitioners as well as a good foundation for a course of study.

It is superfluous to state that the arrangement of subjects follows the plan of the book on which it is based, but we have found interest in examining the means by which the author has succeeded in reducing the volume to such small compass. This has to a large extent been achieved by cutting down clinical details, symptomatology and treatment to a few brief notes, by omitting repetitions and redundancies, and by adopting a terse but not unduly telegraphic style. Many of the plates of the larger work have perforce been omitted, but nevertheless the book is well illustrated by line drawings and a few essential colour plates—not to mention a number of very ingeniously constructed life-cycle diagrams.

A possible objection to such striving after brevity arises with regard to the notes on the geographical distribution of certain parasites. *Onchocerca volvulus*, for example, has a wider distribution in Africa than that indicated, and no mention is made of an important focus in Central America. The African distribution of Guinea worm could have received a line or two without defeating the author's aim.

The book can be recommended as an excellent summarized introduction to human parasitology.

An Introduction to Psychopathology. By D. Russell Davis; 1957. London, New York, Toronto, Melbourne: Oxford University Press. 8½" × 5½", pp. 396. Price: 49s. 9d. (Australian).

DR. D. RUSSELL DAVIS is to be congratulated on this book. It is balanced, in the sense that it gives due credit to all schools of psychiatric thought, and that it has been written by a practising psychiatrist with long experience in a psychological laboratory. The result is a refreshing harmony between clinical observation and theory.

At the outset the author adopts Bernhard Hart's definition of psychopathology as connoting "not a mere description of mental symptoms, but an endeavour to explain disorder or certain disorders in terms of psychological processes". Appropriately he discusses the schools of psychoanalysis. Whilst great praise is given to Freud for his contributions, Janet, Kraepelin, Mesmer, Jung, Rorschach and Murray are also included. He admits that personally his views have much in common with those of Adolf Meyer.

In a chapter on "Inherited and Physical Factors in Ætiology", he concludes that, although they may contribute to the initiation of some disorders, their significance is of minor importance.

Ecological studies include the work on suicide by Durkheim, the Chicago survey on the patterns of distribution of mental patients, and an account of mental disorders in non-European cultures.

Thirty pages are devoted to "Genetical Studies". This section includes Huntington's chorea and specific dyslexia, twin records and an analysis of intelligence quotient inheritance.

The importance of family environment is stressed. Bowlby receives credit for his work "Maternal Care and Mental Health". Various classifications of "homes" make interesting reading. "Low on warmth, democracy, and indulgence", "high on solicitousness and destructiveness, refrigerator parents who are cold, over-anxious, aggressive and domineering" are among the types. His own classification is four-fold—"normal, demanding, over-anxious and unconcerned".

A book outlining the "why's and what" of many aspects of human behaviour sets problems for the reviewer. There are intriguing problems on almost each page, thus: "Why are fostered children retarded? What are the stimulation values in a home? What does discipline achieve? What happens to children of superior intelligence? Why right or left handed? Why a poor reader? Why do some children over-eat? Why does homosexuality occur? Do adolescent girls tend to be promiscuous? It is surprising how much is known, but space does not permit an answer here.

As almost every man is most interested in his muttons, it is not surprising that space is given to the author's cockpit experiments. Air force pilots were tested on an artificial cockpit, whose set-up imposed operational strains. The behaviour of the pilot was greatly influenced by his emotion. If he was anxious and frustrated, he tended to over-act his movements, and vicious circles commenced. He became obsessed with the machine, more anxious, more depressed, and less efficient. The experiments in miniature shed a light on the experiences of medical practice. Our patients, bogged down by their anxieties, daily proceed on lines which make them sink deeper into the mire of circumstances.

The logical conclusion is that the role of the psychotherapist is a modified version of a cockpit instructor. He has "to modify gradually the faulty tendencies shown by the patient, teach him new techniques and give him confidence to try again to form relationships with others of a different kind from before. In general, his purpose is to re-educate the patient to look at the world in a more satisfactory way".

The author in his conclusion admits that therapy is not easy—medical, philosophical, religious, legal and practical problems arise and must be solved. To this end "An Introduction to Psychopathology" is of practical assistance.

Human Blood Coagulation and its Disorders. By Rosemary Biggs, B.Sc. (Lond.), Ph.D. (Toronto), M.D. (Lond.), and R. G. Macfarlane, M.A. (Oxon.), M.D. (Lond.), F.R.S.; Second Edition; 1957. Oxford: Blackwell Scientific Publications. 8¾" × 5½", pp. 504, with 53 illustrations. Price: 42s.

IT is four years since the first edition of this book was published, and as was predicted at the time, a new edition has become necessary because of rapid advances in the subject. A general revision with the inclusion of new material has fortunately proved possible with an increase of only 52 pages and with a relatively small increase in price. The general format has been retained. The first part of 11 chapters is concerned with the physiological aspects of the coagulation factors, and the second part of nine chapters with the clinical disorders that arise from deficiencies. The first of four appendices is a glossary of terms, which helps to overcome some of the confusion arising from the various nomenclatures used by different workers. Another appendix summarizes the systematic investigation of coagulation defects, a third describes the preparation of reagents and coagulation factors, and a final appendix gives details of the numerous tests now used to assess coagulation efficiency.

The principal changes in this new edition are the result of investigations involving the thromboplastin generation test in clinical conditions. This test had just been introduced four years ago; but now it is probably the most useful single test for defining the nature of clinical disturbances. It enables a number of the coagulation factors to be investigated, both qualitatively and quantitatively. There have also been advances in the biochemical aspects of some of the interactions. A somewhat unusual aspect of blood coagulation is that our present knowledge has been largely gained from studying the mechanisms in deficiency diseases. Coagulation is not a subject which lends itself to experimental investigations in laboratory animals. The physiological mechanisms are complex, but some are now being elucidated as a result of studies in human patients. The authors state: "Theories of blood coagulation are a necessary guide to experiment, and as knowledge advances, the theory changes."

The first edition of this work was unquestionably the standard reference book on blood coagulation, and it has now been replaced by an even more useful book. Physiologists, biochemists and pathologists will find this new edition indispensable in the laboratory. Clinicians will also require it for reference, particularly when presented with a patient suffering from an unusual hæmorrhagic disease.

Notes on Books.

Malaria. *Bulletin of the World Health Organization*, Vol. 15, No. 3-4-5, 1956. Geneva: World Health Organization. Pp. 502. Price: £1 10s. (sterling).

THIS special issue of the *Bulletin of the World Health Organization* has to be read in the light of the antimalaria policy adopted by the Eighth World Health Assembly—namely, that the aim should be to eradicate malaria rather than to continue indefinitely to control it with residual insecticides. In the opening article, G. Macdonald, Director of the Ross Institute of Tropical Hygiene, discusses the theory of the eradication of malaria. Other articles deal with insect resistance, entomological investigations, epidemiology, control and prophylaxis. Most of the *Bulletin* is not of general interest, but it should be most acceptable to those concerned with the technical aspects of malaria and its control.

Cats. By Brian Vesey-Fitzgerald; 1957. Mitcham, Victoria: Penguin Books Proprietary, Limited. London: Wyman and Sons, Limited. 7″ × 4¼″, pp. 272, with 32 illustrations. Price: 7s. 6d.

MANY people like cats and many people loathe them; few are indifferent to them, though many cats appear indifferent to people. Although this book is intended for cat-lovers, there is much of biological interest in it. The chapters on the history of the cat cover briefly the whole cat family, from Miacis, who flourished some 40,000,000 years ago, to the present-day alley cat; the "big cats" are included. The chapter on "The Quiddity of the Cat" deals with every possible facet of the cat's anatomy, physiology and psychology. Other chapters on genetics and breeding are succinct and informative. (From the psychological point of view, we were uncomfortably reminded of Professor Walter Murdoch's essay, "The Animals in the Basement".)

This book is written in delightful English by someone who has an unsentimental affection for cats, and who also has a sense of humour. He does not make the common mistake of projecting human character into the cat, and his advice concerning the general management of cats of all types is a masterpiece of practical common sense. A number of attractive photographs add to the pleasure of reading this book, which is, as is stated in the preface, a "complete, comprehensive, and fully illustrated guide to the domestic cat".

Family Doctor. Published monthly by the proprietors, the British Medical Association, Tavistock Square, London, E.C.1. Sole agents for Australia and New Zealand: Gordon and Gotch (Australia), Limited. Subscription for twelve months: 20s. (sterling), including postage.

THE October, November and December issues of *Family Doctor* are as full of interest as ever. In the October issue, useful discussions appear on the question of sweets (including "deadly sweets"—attractive-loking pills and capsules), spectacles, the way to enjoy old age, "The Change and Mr. Bradshaw", uterine prolapse, and the benefits of chiropody. Many suggestions are given for safeguarding the winter health of the whole family, and the "Under-Five Forum" deals with a number of common but knotty problems. There is much subtle enjoyment to be gained by reading the editor's letter on "Precious Stones"; it is a neat piece of debunking applied to the more sinister types of quack remedies. The November issue opens with a story of a small boy's courage, told by the editor. An excellent article discusses treatment by manipulation, and explains the difference between the unqualified osteopath and the qualified doctor. Much sound common sense is to be found in John Clyde's summary of the relationship between diet and heart disease, and an informative paper tells of the attempt to take dust dangers out of industry. "The Coming of Kippy" is described by word and by pictures taken by his father, Burr Jerger. Gabriel Fielding's advice on "Talking to Children" should be particularly helpful to parents whose child has to undergo an operation.

In the December issue, as was to be expected, the accent is on Christmas. The cover picture features a bewitching little miss in her party frock, admiring her hair-do in a hand-mirror. John Stevens contributes the first instalment of the surgeon's log of *Mayflower* II; he sailed as "a ship's surgeon with a difference" in this replica of the famous pilgrim ship. An article by Kenneth Hutchin on Asian 'flu should help to overcome the panic that has unfortunately been associated with the disease. F. R. C. Casson contributes a delightful article on "The Meaning of Christmas", in which he stresses the fact that "Christmas is especially the time when we give, not expensive gifts nor extravagant praise, but outselves". Doris Odlum suggests that, although we may say that "hobgoblins and witches and gnomes and fairies are all kid-stuff", not many of us can honestly say that we do not believe. There are many other features in this issue in the familiar *Family Doctor* vein, interesting and informative. There is something in it for everyone.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Modern Trends in Neurology (Second Series)", edited by Denis Williams, C.B.E., M.D., D.Sc., F.R.C.P.; 1957. London: Butterworth and Company (Publishers), Limited. 9½″ × 6½″, pp. 388, with 79 illustrations. Price: £5.

Twenty-four essays on modern neurology.

"Current Medical Research: A Reprint of the Articles in the Report of the Medical Research Council for the Year 1955-1956"; 1957. London: Her Majesty's Stationery Office. 9¾″ × 6″, pp. 56. Price: 2s. 6d. (English).

Reviews of 13 subjects selected from the large number of research studies which the Council now supports.

"Oligophrenia in Combination with Congenital Ichthyosis and Spastic Disorders: A Clinical and Genetic Study", by Torsten Sjögren and Tage Larsson, with the assistance of Göta Petersson; 1957. Copenhagen: Ejnar Munksgaard; *Acta Psychiatrica et Neurologica Scandinavica* Supplement 113, Volume 32. 9½″ × 6¼″, pp. 113, with eight illustrations. Price: 65 Danish Kroner per volume.

An investigation into 28 cases of a congenital condition which, so far as the authors know, has not previously been reported.

"Inhalation Analgesia in Childbirth", by E. H. Seward, M.A., D.M. (Oxon.), F.F.A.R.C.S., D.Obst., R.C.O.G., and R. Bryce-Smith, M.A., D.M. (Oxon.), F.F.A.R.C.S.; 1957. Oxford: Blackwell Scientific Publications. 7½″ × 5″, pp. 68, with 11 illustrations. Price: 7s. 6d. (English).

Written primarily for midwives.

"Heredo-Retinopathia Congenitalis: Monohybrida Recessiva Autosomalis: A Genetical-Statistical Study", by Carl Henry Alström, in clinical collaboration with Olof Oslon; 1957. Lund: Printed by Berlingska Boktryckeriet. 9½″ × 7″, pp. 183, with three illustrations. No price stated.

A study based on a series of 175 cases of a hitherto unreported hereditary form of congenital blindness or severe inpairment of sight.

"Studies on Melanin (Report II)", by Minor Ito; 1957. Sendai, Japan: The Tohoku University; *The Tohoku Journal of Experimental Medicine*, Volume 65, Supplement 5. 10″ × 7″, pp. 134, with 64 illustrations. Price: $5.50 per volume.

An account of investigations into melanin formation.

"Cardiology", by William Evans, M.D., D.Sc., F.R.C.P.; Second Edition; 1956. London: Butterworth and Company (Publishers), Limited. 9½″ × 6½″, pp. 586, with 569 illustrations. Price: £6 7s. 6d.

The author aims to incorporate changes and progress in cardiology since the first edition was published.

"Medical Writing: The Technic and the Art", by Morris Fishbein, M.D.; Third Edition; 1957. New York, Toronto, London: The Blakiston Division, McGraw-Hill Book Company, Incorporated. 9″ × 6″, pp. 272, with 36 illustrations. Price: $7.00.

A well-known book by an acknowledged master.

The Medical Journal of Australia

SATURDAY, DECEMBER 21, 1957.

IL BAMBINO.

Of the many fine squares of Florence, ancient capital of Tuscany, one has a great appeal to the medical visitor, especially the pædiatrician. This is the Piazza Santissima Annunziata, a wide expanse broken only by the lively equestrian statue of Ferdinand I and by two curious fountains decorated with mythological sea monsters in bronze. Of the buildings which flank the square, the one to interest us is the Hospital of the Holy Innocents, which was founded early in the fifteenth century by the Florentine Republic to take in foundlings and children of poor families. Sponsored by the Guild of Silk Weavers, this hospital is said by Roberto Bartolini[1] to be the most ancient institution of its kind in Europe. Its graceful arched portico is the work of the Renaissance architect Brunelleschi, whose memory is assured in some of Florence's noblest buildings; but its best known feature is a series of medallions set between the arches, the *bambini* of Andrea della Robbia. Each medallion (there are 14 in all) is a bas-relief in glazed terracotta of an infant in swaddling clothes. Ten are the work of Andrea della Robbia (1435-1525), and the infants are all in different attitudes; four, which were added when the hospital façade was lengthened in the middle of the nineteenth century, are faithful copies of the originals and were executed at the Ginori *fabbrica* at Doccia, near Florence.

The story of the sculptor of the *bambini* is interesting. Andrea della Robbia and his even more famous uncle Luca della Robbia (1400-1482) have left their work all over Florence and in many other parts of Italy. Luca is credited[2] with being the first to apply enamel glaze to works of sculpture in terracotta; "this gave the clay he moulded the charms of transparency and brightness, while at the same time he rendered it durable enough to resist many centuries of exposure to the air". Luca adopted his two orphan nephews Andrea and Simone in their boyhood and brought them up in his own household. Andrea from an early age showed great aptitude for sculpture and followed in his uncle's footsteps; so that on his death Luca, with fairness and thoughtfulness more apparent on reflection than at first thought, left his money to Simone and his art to Andrea. Andrea's use of the medium that Luca had perfected is regarded as more delicate than that of his uncle, and whether or not the pupil's work is in general to be regarded as inferior to that of the teacher, this particular quality was well suited to the medallions. "These delightful little foundlings", write Cavalucci and Molinier,[1] "who by their gestures seem to invoke our aid and pity, combine in the most decorative way to adorn the loggia. The white enamel of their flesh, and the swaddling-bands, occasionally tinted with brown, relieved against the bright blue of the backgrounds, form cheerful notes against the sombre tones of the wall." Each has its distinctive appeal—one is fragile and wistful, another sturdy and mischievous, a third full of sadness, yet another thoughtful and challenging. As Maud Crutwell[3] comments, "All have the pathos of the theme—the Innocenti, waifs and strays of Humanity, cast adrift at birth on a careless world which feels no responsibility towards them, and they seem, with their outstretched arms and pleading eyes, to crave the pity of the passer-by". Each *bamino* in its own way presents the eternal appeal of the helpless child.

The significance of this has been recognized by various pædiatric bodies. Since early in its existence the American Academy of Pediatrics has had as the main feature of its insignia a *bambino*, adapted from one of the della Robbia originals. Paul W. Beaven[2] relates that the first design, which was used for ten years, was severely criticized by a President of the Academy as "a scrawny youngster" not worthy of its origin. Another artist was then asked "to design a bambino more in keeping with the Italian original and still have it suggest an American child". The result, modelled on the only figure by Andrea della Robbia that did not have the feet swaddled, has now been the insignia of the Academy for the past 16 years. It shows a sturdy child with legs and arms free, but still with the attitude of appeal that is so much a part of the *bambini*. Beaven points out that there are certain anomalies in the della Robbia medallions and especially in the one from which the Academy's insignia is taken, but they are within the scope of the artist's liberties. One is the fact that all the *bambini* appear to be about 18 months old, whereas swaddling clothes were put on children only to the age of about three months. Moreover, the swaddling bands usually enclosed hands and feet. However, Andrea della Robbia had to present an appealing figure. His universally acclaimed success must be held to justify his disregard of details. The older child fits better into the setting, and the modern mind seems to be especially attracted to the liberation of the *bambino* from the confines of its swaddling clothes. In this it is now urged by José Martinho da Rocha[4] that the *Sociedade Brasileira de Pediatria* should follow the example of the American Academy of Pediatrics. Since 1936 the *Sociedade* has had as part of its insignia a *bambino* wholly swaddled except for its arms, and, like the figure on the first insignia of the American Association, lacking very much in the appeal of the original. Da Rocha advocates adoption of a new design which is artistically more effective. It includes a close copy of a *bambino* whose feet are still swathed, but from whom the swaddling bands have fallen to around and

[1] "Florence and Its Hills" (1954), 200.
[2] "Masters in Art" (1901), 2:22.
[1] *Ibidem*, 2:37.
[2] "Luca and Andrea della Robbia and their Successors" (1902), Dent, London, 152.
[3] *Pediatrics*, 1956, 17:765 (May).
[4] *Bol. inst. puericultura*, 1957, 14:59 (March).

below the knees as if it is about to free itself wholly from its draperies at any moment and to go forward *"para a conquista da vida"*—on the way to the conquest of life.

The theme of the *bambini* of Andrea della Robbia and of their modern adaptations in the world of pædiatrics well fits the present season. Della Robbia's medallions are undoubtedly meant to depict not only the waifs and strays for whom the hospital was founded, and not only the Holy Innocents—the infants massacred by Herod—after whom the hospital was named, but also and first of all *Il Bambino*, the Christ-child. The Greek physician Luke tells us that on the first Christmas night Mary "brought forth her firstborn son, and wrapped him in swaddling clothes, and laid him in a manger, because there was no room for them in the inn". Thus the infant Jesus becomes the symbol of the helpless child appealing to an adult world grown hard and cynical and preoccupied with getting and spending. We do not like to think that today a mother could be left to give birth to her child in a stable without trained help, or that a child could die in a hospital from starvation as some did at the Hospital of the Holy Innocents when hard times came on Florence. The Welfare State and the Government-sponsored international health and relief organizations are looking after things like that. That is as may be, but the modern world has brought its own problems. There are still children in need of food, of homes, of medical care, and from this want they ask us to make them free. Millions more, on the other hand, know nothing of this kind of want, but they face a world of Sputniks and intercontinental missiles, of cold wars and racial feuds, of bureaucratic regimentation and charity grown cold, of broken homes and rising divorce rates, of parents who care too little to bother and parents who care too much to be unselfish. Much concern is expressed today about the number of "problem children". "Problem children", writes Waldo Nelson,[1] "are not trying to create problems—but to solve them." Their elders may well ask what part they themselves play in creating the problems for their children. Perhaps they would have a better chance of solving their own problems if they could look at the world through their children's eyes, or through the eyes of the foundlings of Florence, or through the eyes of the infant Christ. Many things have changed since the first century and since the fifteenth century, but the appeal of *Il Bambino* to the adult world remains. Christmas is a good time to think about it.

Current Comment.

A PICKWICKIAN SYNDROME: ABNORMAL CARDIO-RESPIRATORY FUNCTION ASSOCIATED WITH OBESITY.

LAST year S. C. Burwell and his colleagues[2] applied the term "a Pickwickian syndrome" to a condition occurring in obese people, by no means necessarily boys, of which the outstanding symptom is somnolence. Polycythæmia, often of a degree sufficient to suggest *polycythæmia vera* if considered in isolation, is commonly present, and so is cyanosis. This may be largely peripheral, but oxygen saturation is often lowered slightly and sometimes falls a little more on exercise. Diminished exercise tolerance, as might be expected, is the rule. Further study of these patients reveals that there is carbon dioxide retention with a compensated respiratory acidosis. There is no pathological abnormality in the lungs, and the whole syndrome seems to be secondary to alveolar hypoventilation. Ventilatory capacity, in spite of the moderate lowering of vital capacity in obesity, remains normal or nearly normal, and in fact by voluntary hyperventilation anoxæmia and hypercapnia can often be abolished. This observation, together with the finding that arterial oxygen saturation reaches 100% when the patient breathes oxygen (incidentally, carbon dioxide tension may rise during this procedure), excludes the possibility of veno-arterial shunts in the lesser circulation.

Glen Lillington and his colleagues[1] have recently described in detail eight cases from the Mayo Clinic, and their paper provides an excellent summary of the literature. They emphasize the reversibility of all the functional disorders once the patient begins to lose weight; some of their patients relapsed with subsequent increases in weight. In more severe cases (four of the patients in the present series weighed 30 stone or thereabouts, but such extreme figures are not essential for the diagnosis) pulmonary hypertension has been demonstrated, right ventricular preponderance is apparent in the electrocardiogram, and cardiac failure may supervene; the blood urea level may rise, and albuminuria is also found. Less marked examples of the condition undoubtedly occur, probably more frequently than is thought, and it may well complicate the picture in patients with emphysema, who almost invariably derive benefit from weight reduction if they are overweight at the time of diagnosis. Indeed the mechanism or mechanisms leading to carbon dioxide retention in both disorders may have one point in common—namely, that there comes a time when it is uneconomical in terms of oxygen consumption and carbon dioxide production to increase ventilation further, because the work of breathing (and hence oxygen requirement) is so much increased. There is evidence that this mechanism is relevant to the relative alveolar hypoventilation of some patients with emphysema, but it remains a hypothesis, advanced by Lillington and his associates, in the case of the cardio-respiratory syndrome of obesity.

"CLUES TO SUICIDE."

"CLUES TO SUICIDE" is an apt title for an important series of articles on the problems of suicide, issued in book form under the editorship of E. S. Shneidman and N. L. Farberow.[2] The book is based on three lines of research—case histories of suicides, psychological tests on attempted suicides and analysis of notes left by suicides. The last-mentioned were checked by control data obtained from normal people. Many of the notes are quoted *in extenso*; the reader, as in a quiz, is invited to guess which are genuine and which are not. The exercise is not merely intriguing, but also useful as offering a clue to the type of person likely to be actively suicidal.

Early chapters deal with the controversial subject of motivation. The well-known concept of Karl Meninger that there are three elements in suicide—the wish to kill, the wish to be killed and the wish to die—does not explain all cases. There are many reasons, some of which are as follows: the schizophrenic's desire to be reborn; a wish to be with a beloved parent; a belief in magic in order to inflict punishment (the authors remind us of Mark Twain's "Tom Sawyer". Tom, frustrated by his aunt, thinks of suicide by drowning in order to make her remorseful); the desire to punish oneself (*vide* suicide

[1] "Textbook of Pædiatrics", edited by Waldo E. Nelson, Sixth Edition (1954), Saunders, Philadelphia and London.

[2] *Am. J. Med.*, 1956, 21: 811 (November).

[1] *Dis. Chest*, 1957, 32: 1 (July).

[2] "Clues to Suicide", edited by Edwin S. Shneidman, Ph.D., and Norman L. Farberow, Ph.D., with a foreword by Karl A. Menninger, M.D.; 1957. New York, Toronto, London: The Blakiston Division, McGraw-Hill Book Company, Incorporated. 8½" × 5½", pp. 240. Price: $5.50.

on the anniversary of a parent's or sibling's death); as an aid in dealing with overwhelming fear of death (an attempt to discover whether death is really as dreadful as supposed). It is clear that there is no universal cause for suicide. Such captions as "due to worry" or "being out of one's mind" do not approach the core of ætiology. Interestingly, there is a shift in causation according to age; the more emotionally charged young adult wishes to kill or be killed, the old person, discouraged by adversities, "wishes to die". One study appropriately concerned views on death. The majority of the aged viewed old age as "the end of the line". Only 15% thought of it as a time for "leisure", "peace" and "contentment".

A chapter on "The Sociology of Suicide" records that 17,000 persons in the U.S.A. in 1950 committed suicide. The rate among "whites" is three times greater than among "Negroes". Males are more prone to suicide than females. The urban rate is higher than the rural, and the rate is higher for the unmarried, widowed and divorced than for the married, and for the old than for the young.

The second part of the book is devoted to psychotherapy. It commences with a survey of 50 persons who had made suicidal attempts and recovered. The most consistent feature was the "death trend". This implies involvement in death or loss of a parent, a sibling or mates. Another significant finding related to the "reactivation phase". After the patient had improved, there was a tendency to relapse on returning to his previous environment. The implications of this are highly important. The patient must be encouraged to have longer treatment than he may think necessary. He must be carefully shepherded through the dangers of convalescence, and if possible have a change in occupation or retirement and an all-round improvement in his interpersonal relationships.

The responsibility of the physician is great. He must be prepared to see the patient frequently and must show great versatility in dealing with the numerous factors underlying the suicidal episode. The results are sufficiently good to warrant treatment; but without doubt early diagnosis might have saved many attempts at self-mutilation. The fact is stressed in this book that it is practically impossible to foretell suicide from a case history alone, but 75% of suicides have previously threatened or attempted suicide. It is apparent that such clues should be sought and treated seriously. Lastly, almost 50% of persons who suicided after leaving hospital were within 90 days of discharge. The need for efficient after-care during this period is obvious.

"Clues to Suicide" will repay reading by any member of our profession who comes into contact with potential suicides, as all may well do sooner or later.

BRITISH EMPIRE CANCER CAMPAIGN.

LIKE its immediate predecessors, the thirty-fourth annual report of the British Empire Cancer Campaign (for the year 1956) covers a wide field. Every avenue, path and by-way of research technique which might possibly lead to a useful result has been explored. As the editor candidly confesses, this extensiveness indicates that the evidence is still non-convergent; once a clear opening to a possible goal is revealed, the widespread energies of the investigation will display centripetal direction. This report will be read with profit by others than medical researchers. There are recent devices in pure physics which have been adopted and improved to suit the more complex conditions presented; thus microscopy, electronic and interference, paramagnetic resonance and polarography have been applied to animal tissues and fluids. One of these physical approaches seems particularly promising in many biological spheres—namely, the use of ultrasonic echoes in the diagnosis of tumours, malignant and non-malignant. The reflection of sound from an interface is determined by the ratio of the acoustic impedance of the two phases. If the impedance of various tissues and body fluids, normal and pathological, is measured and recorded, then ultrasonic echography will give information regarding not only the form and location of a neoplasm but its constitution. Organic chemistry is similarly enlisted in the campaign.

Amongst the many problems dealt with in this report the following may be selected for mention. The belief now held by many medical experts that cigarette smoking is one of the causes of pulmonary cancer is based on statistical evidence; the results of animal experiments have been disappointing. The immunological concept of cancer which is associated with the name of Professor Green, of Leeds, is gaining ground, but recent work in the Leeds school has shown that the position is more involved than was originally conceived. Chemical carcinogens hitherto examined have been highly complex polycyclic compounds; now it is shown that propiolactone with three carbons, four hydrogens and two oxygens, also ethyleneimine with two carbons, five hydrogens and one nitrogen, substances much simpler than their names might suggest, are definitely carcinogenic. Further investigations with these two will be welcomed.

The above are representative samples of the many topics and techniques described. The report is well worth reading by all experimental biologists.

TRAUMA IN SPORT.

IN 1926 Professor F. Mandl, who is director of the surgical unit of the Kaiser Franz Josef Hospital in Vienna, published a book with the title *"Chirurgie der Sportverletzungen"*. The same author in 1955 returned to the topic[1] and gave a useful bibliography of appropriate articles. In March, 1957, Professor Mandl delivered an address dealing with the fundamentals of this same subject, and an abstract of this has been published;[2] details of operations are omitted, and indeed it would seem that these are unnecessary as the various procedures are well known and widely used.

Sport injuries differ from those encountered in ordinary practice in several aspects. The patients are mostly healthy young men with powerful musculature, and such enlarged muscles produce greater displacements in fractures; moreover, they tend to waste quickly if immobilized, and this atrophic complication affects the muscles operating on adjacent joints. The aim of the surgeon in ordinary accidents is to enable the patient to resume work; in sports cases the hope is to allow him to go back to his athletic specialty. Frequently Professor Mandl has observed with these injuries a general condition of "stress" (the English word is used) which suggests unusual activity of the adrenal cortex. He has found injection of hydrocortisone useful in the management of "tennis elbow" and of other disabilities in which obviously a state of chronic inflammation of connective tissue is present. In trauma of the semilunar cartilages of the knee joint he advocates removal of the whole cartilage and not merely the injured or detached portion. Injection of local anæsthetics and autotransfusion of blood are also discussed. The Australian medical reader will probably smile at his division of knee injuries into those which the general practitioner can handle and those which demand the services of an expert surgeon. It is allowed that if there is no rupture of lateral or cruciate ligaments and no injury to the semilunar cartilages, then the general practitioner can treat the ailing knee with rest in a gently flexed position; an effusion of fluid can be aspirated if after a week there is no improvement, and full details are given of where to make the puncture and of the need to avoid piercing injured skin or other tissue! Many readers will feel that there is still room for a good book on this subject, but it should be written by a surgeon living and working in an English-speaking community.

[1] *Wien. med. Wchnschr.*, 1955, 105: 791.
[2] *Ibidem*, 1957, 107: 373 (May 11).

Abstracts from Medical Literature.

PHYSIOLOGY.

Work Efficiency and Respiratory Response of Trained Underwater Swimmers.

H. SPECHT, L. G. GOFF, H. F. BRUBACH AND R. G. BARTLETT, JUNIOR (*J. Appl. Physiol.*, May, 1957) report that studies of the work efficiency and respiratory responses of trained underwater swimmers were made employing a modified self-contained underwater breathing apparatus (SCUBA). It was found that the work efficiencies were very low (2% to 8%) as compared to the efficiencies in comparable exercises in air (16% to 20%). At low swim speeds (0·6 and 0·7 knot) average efficiencies from swimmer to swimmer varied markedly (2% to 8%), while at higher swim speeds (0·7 to 1·2 knots) the average efficiencies varied little (3% to 5%). The maximum attainable respiratory responses to an extended exercise period (20 minutes) in underwater swimming were much lower than those observed in exercises in air. Thus, maximum pulmonary minute volumes were usually much less than 80 litres and the maximum oxygen consumption was only about 100 litres per square metre body surface per hour.

Body Temperature and Water Economy of the Camel.

K. SCHMIDT-NIELSEN, B. SCHMIDT-NIELSEN, S. A. JARNUM AND T. R. HOUPT (*Am. J. Physiol.*, January, 1957) report that the rectal temperature of normal healthy camels at rest may vary from about 34° C. to more than 40° C. Diurnal variations in the winter are usually of the order of 2° C. In summer the diurnal variations in the temperature of a camel deprived of drinking water may exceed 6° C., but in animals with free access to water the variations are similar to those found in the winter. The variations in temperature are of great significance in water conservation in two ways: (i) The increase in body temperature means that heat is stored in the body instead of being dissipated by evaporation of water. At night the excess heat can be given off without expenditure of water. (ii) The high body temperature means that heat gain from the hot environment is reduced because the temperature gradient is reduced. The effect of the increased body temperature on heat gain from the environment has been calculated from data on water expenditure. These calculations show that under the given conditions the variations in body temperature effect a considerable economy of water expenditure. Evaporative heat regulation in the camel seems to rest exclusively on evaporation from the skin surface (sweating), and there is no apparent increase in respiratory rate or panting connected with heat regulation. The evaporation from isolated skin areas increases linearly with increased heat load. The critical temperature at which the increase sets in is around 35° C. The fur of the camel is an efficient barrier against heat gain from the environment. Water expenditure is increased in camels that have been shorn.

Discrimination of Calcium and Strontium by the Kidney.

N. S. MACDONALD, P. NOYES AND P. C. LORICK (*Am. J. Physiol.*, January, 1957) report that skeletal retention and excretion of strontium were directly compared with those of calcium, by injecting solutions containing both radioisotopes, Ca^{45} and Sr^{90}, into rats and rabbits. In normal animals, a greater fraction of the injected dose of Ca^{45} was retained in the skeleton than was observed for Sr^{90}. In complementary fashion, the fraction of the injected Sr^{90} which appeared in the urine was greater than the fraction of the dose of Ca^{45} which was excreted. However, in rats which had actively calcifying tibial fractures, this difference disappeared. The enhanced accumulation of radioactivity in deposits of new bone possessed the same ratio of Sr^{90} to Ca^{45} as the solution injected. Furthermore, when the functions of the kidneys of normal rabbits were impaired by poisoning with mercuric chloride, or were completely extinguished by nephrectomy, again the usual differences between Ca^{45} and Sr^{90} deposition in bone tissue disappeared. When plasma containing both Ca^{45} and Sr^{90} was shaken with powdered bone, both radioisotopes were extracted in equivalent amounts. It was concluded that the avidity of bone tissue, *per se*, for strontium ions is not discernibly different from that for calcium ions. The retention by the skeleton of a larger fraction of an injected quantity of calcium than of simultaneously administered strontium was attributed, in part, to a renal discrimination causing a greater relative loss of strontium to the urine.

Development of Sex Difference in Blood Pressure of the Chick.

H. S. WEISS, R. K. RINGER AND P. D. STURKIE (*Am. J. Physiol.*, February, 1957) report that in order to establish the age and manner in which the sex difference in blood pressure of the adult white leghorn chicken develops, periodical blood pressure measurements were made on chicks between three and 34 weeks of age. There were no consistent differences in pressure between the sexes under eight weeks of age. Between the eighth and thirteenth weeks, pressures began to diverge, and within four to eight weeks a 26 to 30 millimetres sex difference in systolic pressure developed. Significant divergences occurred also in diastolic and pulse pressures. The sex divergence was due primarily to a rise in male pressure, the female level remaining comparatively stable. Net changes in male parameters during the period of rapid development of the sex difference in pressure were: body weight, +219 grammes; systolic pressure, +26 millimetres of mercury; and heart rate, —22 per minute. The age at which the sex difference in pressure begins and its rate of development appear to be related to sexual maturation in the male. However, no significant correlation between the rising male pressure and testis or comb size could be shown. Normal chick blood pressure values prior to the sex divergence differ within strains of white leghorns. In the two groups used, between seven and nine weeks of age, these values were 150/130 and 162/136 millimetres of mercury.

Gastro-Intestinal Regulation of Water and Its Effect on Food Intake and Rate of Digestion.

S. LEPKOVSKY, R. LYMAN, D. FLEMING, M. NAGUMO AND M. M. DIMICK (*Am. J. Physiol.*, February, 1957) report that an investigation was undertaken to determine the effects of water deprivation during meals in rats. Food intake, gastro-intestinal solids, water content, rate of digestion and tissue water content were studied. Rats fed without water ate less food than rats fed with water. The gastric contents of all animals fed with or without water was approximately 49% water; this indicates close regulation of water in the gastric contents. When fed without water, rats regulate their food intake so that it matches the amount of water that they can mobilize from their own tissues, thereby maintaining the proper water to food ratio in the gastric contents. How this is reflected in the mechanisms that control food intake is unknown. The water found in the gastro-intestinal contents of rats fed without water is furnished by selected tissues, especially the skin, probably the adipose tissues and perhaps other tissues. The contents of the intestinal lumen contain about 76% of water in all the rats irrespective of the availability of water with meals. The total solids in the intestinal lumen of the rats eating without water averaged 0·39 gramme, and of the rats eating with water, 0·52 gramme. The regulation of both water and solids in the intestinal lumen indicates that it acts as though it were a part of the internal environment. Withholding of water during meals does not appear to interfere with digestion, but it definitely decreases appetite and effects a reduction of food intake.

Effects of Graded Resistance to Tracheal Air Flow in Man.

F. ZECHMAN, F. G. HALL AND W. E. HULL (*J. Appl. Physiol.*, May, 1957) report that experiments were made on 11 human subjects to determine the effects of four levels of air flow resistance when added independently or simultaneously in inspiration and in expiration. Resistance ranged from 0·10 to 0·43 millimetre of water per cubic centimetre per second. The authors found that: (*a*) The primary effect of resistance to air flow is a reduction in air flow velocity and an increase in duration of the impeded phase. (*b*) Resistance on one phase may alter the pattern of air flow of the other phase as well; this alteration is generally an elevated maximal flow velocity. (*c*) Reduction in respiratory frequency, increase in tidal volume and increase in expiratory reserve, usually exhibited by individuals breathing in and out through resistance, are mainly associated with the impedance of expiratory flow. (*d*) The extra work associated with breathing through the spectrum of resistances studied increases in a linear fashion. (*e*) As a result of air flow impedance, pulmonary ventilation is reduced and

alveolar carbon dioxide rises and oxygen tension falls. Levels of resistance used have only a slight respiratory effect when subjects are at rest, but bring about dramatic changes in alveolar gas composition when ventilative demands are increased by moderate exercise.

Immediate Effects of Inhalation of 100% Oxygen.

S. P. BAKER AND F. A. HITCHCOCK (*J. Appl. Physiol.*, May, 1957) report a study of the immediate effects of inhalation of 100% oxygen at one atmosphere on respiration in man. Average increases of 6·4%, 6·5% and 11·5%, respectively, were obtained in ventilation volume, carbon dioxide output and respiratory rate when the subjects breathed 100% oxygen; with subsequent decreases of 10·5%, 11·2% and 7·5%, respectively, occurring on transfer back to outdoor air. These effects were attributed to a partial loss of the "dual function" of hæmoglobin. Increased ventilation and carbon dioxide output during breathing of 100% oxygen were attributed to stimulation of the medullary respiratory centre by increased carbon dioxide tension and increased hydrogen ion concentration; decreased ventilation and retention of carbon dioxide resulted on return to outdoor air from a decreased carbon dioxide tension and hydrogen ion concentration. An increase in respiratory quotient of 42·1% and a decrease in oxygen consumption of 25·8% in breathing outdoor air after oxygen as compared to outdoor air before oxygen, indicated a storage of oxygen in the body fluids during the ten minutes of respiration on 100% oxygen. Control experiments with outdoor air demonstrated successive mean increases in all factors evaluated.

Effect of Hypertension on Arterial Wall Electrolytes during Desoxycorticosterone Administration.

L. TOBIAN AND P. C. REDLEAF (*Am. J. Physiol.*, June, 1957) report that administration of desoxycorticosterone and sodium chloride resulted in an increased sodium and potassium content of the aorta in rats which were becoming severely hypertensive. Equivocally hypertensive animals on this regimen showed smaller increases in sodium and a decrease in potassium. Sodium restriction prevented both hypertension and changes in arterial wall chemistry from occurring in rats receiving desoxycorticosterone. Hypertension, *per se*, may be fundamentally associated with an increased potassium and sodium content in the arteries, as experimental renal hypertension is characterized by a similar electrolyte alteration.

BIOCHEMISTRY.

Cholesterol.

M. D. MORRIS *et alii* (*J. Biol. Chem.*, March, 1957) have reported experiments in which, for varying periods up to six weeks, rats were fed a diet containing either 0·05% or 2% cholesterol. The dietary cholesterol was labelled by admixture with cholesterol-4-C^{14}. At the end of the feeding periods the specific activity of serum cholesterol were determined. Maximal specific activities of serum cholesterol occurred in two weeks or earlier in the rats fed the 0·05% cholesterol diet, but four weeks were required for this to occur in the rats fed the 2% cholesterol diet. It was estimated, from the ratio of the specific activity of the serum cholesterol to that of the dietary cholesterol, that in the rats fed the 0·05% cholesterol diet, synthesis contributed from 67% to 80% to the composition of serum cholesterol. In those fed the 2% cholesterol diet, from 10% to 26% of serum cholesterol was derived from synthesis.

Collagen.

B. S. GOULD AND J. F. WOESSNER (*J. Biol. Chem.*, May, 1957) have studied skin regeneration in normal and scorbutic guinea-pigs by quantitative determinations of proline, hydroxyproline and glycine in hydrolysed autoclaved extracts of the granulation tissue. Considerable hydroxyproline formation, which has been taken as a measure of collagen formation, occurs in wounds of previously undepleted animals, even though maintained on a scorbutic diet. Animals depleted of ascorbic acid for four days show considerable impairment, and depletion for seven days results in almost complete cessation of hydroxyproline formation. Impaired hydroxyproline formation appears to be one of the earliest manifestations of the withdrawal of ascorbic acid. Depleted animals restored to ascorbic acid at the time of wounding produce the bulk of hydroxyproline between the sixth and eighth days after wounding. Similar animals maintained on the scorbutigenic diet produce no hydroxyproline, but when ascorbic acid was administered to such animals 10 to 12 days after wounding, they produced relatively large amounts within 24 to 48 hours. Rapid hydroxyproline production in such scorbutic animals upon the administration of ascorbic acid may be due to the conversion of an accumulated pool of protein material, rich in proline and glycine, to a more immediate collagen precursor rich in hydroxyproline, since the appearance of hydroxyproline is accompanied by a concomitant decrease in the non-collagenous proline and glycine of the granulation tissue.

Metals.

R. E. THIERS AND B. L. VALLEE (*J. Biol. Chem.*, June, 1957) have delineated a pattern of metal distribution in the subcellular fractions of normal rat livers as separated by a standard technique. The pattern has been found characteristic and reproducible for each metal, and in one homogeneous rat population it does not vary with time. Iron and manganese have been found in complementary distribution. Sodium and potassium parallel one another. The metal content of the fractions correlates with present knowledge of the distribution of metalloenzymes.

Methionine.

STEKOL *et alii* (*J. Biol. Chem.*, May, 1957) have reported that the extent of transfer of the radiomethyl group of betaine to tissue methionine in rats, mice or chicks deficient in vitamin B_{12} or in folic acid was the same as that in normal control animals. Liver homogenates of rats deficient in vitamin B_{12} or in folic acid synthesized the same amounts of methionine from radiobetaine and homocysteine as liver homogenates of normal rats. Rats deficient in vitamin B_{12} synthesized the same amounts of tissue methionine from radiocystine or radiohomocysteine, indicating that vitamin B_{12} is not concerned with reduction of homocystine to homocysteine *in vivo*. The radiomethyl group of betaine is incorporated into tissue methionine of normal mice, rats and chicks to a considerably greater extent than the radiomethyl group of choline. Under the experimental conditions employed, the present data and those reported earlier rule out vitamin B_{12} and folic acid as co-factors in transmethylation reactions to or from methionine.

Inositol.

H. EAGLE *et alii* (*J. Biol. Chem.*, May, 1957) have shown that *myo*-inositol is an essential growth factor for the survival and multiplication of all 18 normal and malignant human cell lines examined and for one of two mouse lines. In its absence, cytopathological changes developed and the cells died. Only a mouse fibroblast was capable of survival and multiplication in the absence of exogenous inositol. The most effective concentration averaged 10^{-6}M, and with most cells 5×10^{-7}M inositol permitted 50% of the maximal growth. All seven isomers tested, and a variety of compounds structurally related to *myo*-inositol, proved wholly inactive. Phytic acid, and inositol monophosphate derived from phytic acid, had slight growth-promoting activity, averaging 4% and 18% that of free inositol. A monophosphate derived from liver was, however, four to eight times more effective than the plant-derived monophosphate, its activity varying between 68% and 77% that of free inositol.

SURGERY.

Duodenal Ulcer Treated by Vagotomy.

W. WALTERS AND J. MOBLEY (*Ann. Surg.*, May, 1957) present the result of a five to ten years' follow-up investigation of 162 patients with duodenal ulcer treated by vagotomy with and without associated gastric operations. The authors found that for the group as a whole 14% had recurrences of ulceration, whereas 33% were completely asymptomatic. When the patients who were improved were added to those who were asymptomatic, it could be said that excellent and satisfactory results were obtained in 74% of the cases. Significant post-operative loss of weight occurred in 6·6% and severe dumping symptoms in 2·4%. The recurrence rate in the 28 patients who underwent vagotomy alone was 25%, and only 39% were asymptomatic. However, excellent and satisfactory results were obtained in 63% of the cases. When gastro-enterostomy was performed at the time of vagotomy there was a 13% recurrence rate, the total "excellent" and "satisfactory" results rising to 76%.

Brush Up Your Medicine.

LUMPS IN THE BREAST.

EVERY lump in a breast should be removed for histological examination, or incised or excised, and permission should be obtained for radical mastectomy should the surgeon consider it necessary even after macroscopic examination. This may seem a rather provocative and dogmatic statement; but experience gained by some years in general practice and then in consulting practice has confirmed me in this opinion. Early in my career I was called to see a woman in her thirties suffering from what she had been told was lumbago. All her symptoms pointed to this condition with an associated sciatic syndrome. A full examination of the patient, however, revealed what was obviously a large scirrhous carcinoma of the breast. When asked how long this lump in the breast had been present, she replied that it had been present for some years, and that a doctor had told her that it was not serious; consequently she had not worried any more about it. A radiological examination of the spine revealed metastases. This episode made a deep impression, and the more lumps in the breast that I see, the more determined I am that they should all be removed. Admittedly, the more one sees, probably the less mistakes one makes; but surprises occur where one least expects to find them.

A recent review of 150 patients with swellings in the breast showed that of these 150 patients, 83 were suffering from carcinoma. It is interesting to know that this diagnosis was made in 70 cases before biopsy, and that in the remaining 13 the following provisional diagnoses were made: simple tumour (5), fibroadenoma (4), duct papilloma (2), fat necrosis (1), hormonal mastopathy (1). It is interesting to note that of the 67 patients whose lumps were non-malignant, 14 were admitted to hospital with the diagnosis of carcinoma; but biopsy proved the tumours to be cystic hyperplasia in seven cases, fibroadenoma in three cases, fat necrosis in two cases, and inflammatory hyperplasia and intraduct papilloma each in one case. Four of these patients were submitted to radical mastectomy on the clinical diagnosis alone, the true condition being subsequently found post-operatively.

These figures show the need for submitting all lumps in the breast to histological examination.

Some figures have been produced which are somewhat depressing as to the ultimate prognosis of cancer of the breast; but while admitting this, I feel that surgery has something to offer. Patients who have been operated upon up to 30 years previously are known to be still alive. It would appear that if any headway is to be made in the campaign against breast cancer, early diagnosis is the main line of attack—it being realized, of course, that the earliest diagnosable lesion is probably at least six months old when detected.

Patients now come much earlier with these lumps, and the responsibility is on us to make a definite diagnosis of any doubtful lump. This cannot be done on clinical grounds alone, and observation is not justifiable; in fact, biopsy of the breast should be regarded as an emergency operation to be performed without undue delay, and should the diagnosis of carcinoma be established, radical mastectomy should be carried out forthwith. Statistics show that the excision of a doubtful lump does not affect the ultimate prognosis if the radical operation is performed early. This statement also applies to incision into a lump, provided that the surgeon is prepared to proceed with a radical operation at once. A swelling in the breast of a woman of any age can be a cancer. It should be remembered that in early cancer the breast may appear normal in configuration, and that the lump may not be attached to skin or deep structures. In fact the "cardinal signs" of cancer of the breast—adherence to skin, retracted nipple, palpable axillary lymph nodes—are the signs of advanced cancer. It is possible to have metastases with the minimum of local signs.

> A patient and her mother went to the mountains for a holiday. After a fish lunch, both suffered severely from abdominal pains accompanied by vomiting and diarrhœa. The mother recovered after a few days, but the daughter, aged 42 years, continued to be ill, and after ten days returned to her home. It was then that I was called in consultation on account of marked abdominal distension. This proved to be much ascites without any obvious cardiac, renal or local cause. While I was cogitating, I noticed that the right seventh costal cartilage seemed unduly prominent, and, idly palpating this prominence, I found a small hard nodule, no larger than a pea, but with all the characteristics of a scirrhous carcinoma of the breast. This was proven later, and the patient died within a few weeks with abdominal metastases.

As in all branches of medicine, a full and complete history is necessary in every case, followed by a thorough examination.

Inspection of the breasts with the patient fully exposed to the waist is important, and note should be taken of the condition of the skin, nipple and axilla. Look for supernumerary nipples. Dimpling of the skin, which may be often demonstrated by the patient's raising both arms over the head, is an important sign.

Palpation is important, and should be carried out with the hand flat against the chest. It is wise to instruct patients in this procedure, as by so doing many unhappy hours for them may be saved. Palpation between the fingers will often produce false nodules and much worry. The size, position, contour, discreteness, consistency, mobility and rate of growth must be noted. In this examination the axilla, supraclavicular regions and liver should be felt, and the opposite breast and its lymphatic areas should always be examined. Only long experience in palpation teaches the characteristics peculiar to the various mammary lesions.

Examine the nipples for fissures, cracks and warts, and especially for any discharge, noting its consistency, colour and other characteristics. A benzidine test for blood may be of assistance. A microscopic examination of the discharge may reveal cells of a malignant nature.

Other methods of examination, such as transillumination, radiological examination and aspiration biopsy, while perhaps helping in the refinement of the diagnosis, in my opinion may and do lead to errors in diagnosis.

For similar reasons it is my opinion that too much reliance should not be placed upon transillumination or needle biopsy, but that they be considered only as aids to diagnosis. It must be admitted that transillumination may sometimes reveal a non-palpable tumour. If there is any doubt whatever, surgical biopsy should be performed and the report of a very competent and experienced pathologist obtained. Microscopic study is the only reliable basis on which to establish the final diagnosis in mammary lesions.

Fibroadenosis of Breast.

It is my experience that of all conditions of the breast for which opinion is sought, "chronic mastitis", hormonal mastopathy, chronic cystic hyperplasia and the many other names by which it is known is the commonest. The very multiplicity of names given to this condition indicates the uncertainty of its pathology. It has become my custom to follow the nomenclature adopted by Atkins and call it "fibroadenosis". This name is euphonious, and at the same time describes to a certain extent the histological characteristics of the disease.

This is a condition which worries patients, and for which the surgeon must give an opinion as to prognosis. It is not the scope of this article to deal with the detailed histology of the disease, but mainly to discuss it from the clinical angle. There is much confusion and disagreement among surgeons and pathologists as to views and classification. Some aspects of the disease definitely appear to be precancerous, but it is not wholly so, and one cannot recommend wholesale mastectomy to the patients who seek our opinion.

The ætiology of the condition is not definitely known, but there does appear to be a definite hormonal influence through the stimulation by the anterior pituitary body of the follicular ovarian hormone and that of the *corpus luteum*. The former affects the fibrous tissue of the breast and the latter the ducts and acini. However, it is a disease of which it is difficult to state the stage where it commences.

Atkins in his clinic took some of these patients and an equal number of controls, who were not complaining of breast symptoms, and had the breasts examined by an experienced surgeon; it was found that the condition was as frequent and as advanced in the controls as in his clinic patients.

The main symptoms for which these patients present themselves are pain in the breast, with or without a lump, perhaps associated with a discharge from the nipple. A specialized form of the disease occurs in infancy, throughout childhood, at puberty and during adult life in both sexes. This form follows a simple pattern and usually resolves, though it may take months or even years to do so. These

patients are often young girls before puberty; but the disease causes most concern when seen in youths and elderly men, who become very worried when one or both breasts become hard and nodular. In my experience it is more common in one than in both breasts. One can confidently tell these patients that the condition is simple and will subside, though it may take months to do so. I am in the habit of telling these patients that no treatment is required, but that they must keep their eyes, their hands and above all their minds off their breasts.

Three clinical types are recognized, and it is common to find the three types in the one breast, as follows.

Type I is the earliest manifestation of the disease. The chief symptom is pain in one or both breasts, with a localized segment and tender area of induration. The history usually discloses that the pain and swelling are worse before menstruation. The breasts are often poorly developed and the patients have usually not borne any children. It is seen in the younger age group in the fourth decade. It is common for the condition to disappear spontaneously, but at times the patient complains so much of the pain and becomes so worried about the prognosis that radical measures have to be adopted, admittedly to relieve the patient's anxiety more than the pathological lesion of the breast.

Type II is the presentation of the disease often known as Schimmelbusch's disease, parenchymatous hyperplasia, cystic hyperplasia and many other names. It is characterized by cyst formation and epithelial hyperplasia leading to the formation of nodules one millimetre to one centimetre in diameter. It is seen most often in the fifth decade, and again usually in *nulliparæ*. It would appear to be an advanced form of Type I. A serous or serosanguineous discharge is common in this type, and on account of the formation of a definite nodule biopsy is often imperative.

Type III (cystic disease, blue-domed cysts) is more common after the menopause, and may occur as often in parous as in nulliparous patients. It is characterized by large solitary or multiple cysts, and is often accompanied by a serous or brownish discharge from the nipple.

Discharge from the Nipple.

It is well here to interpolate a discussion on discharge from the nipple. In my experience this must always be regarded as serious, even when it is not blood-stained. At the same time, it must be admitted that a discharge which is not blood-stained is not so serious as one that is. A brownish discharge, which when chemically tested is not old blood, and a greenish discharge are found in fibroadenosis. On the other hand, while a serous or serosanguineous discharge may be present in fibroadenosis, it is also significant of duct papilloma and cancer. It has been said that 50% of patients presenting with bleeding from the nipple have an underlying cancer, while 70% of those patients aged over 60 years with a discharge of any nature have malignant disease. If a definite nodule cannot be palpated, the area from which the discharge is coming can be found by pressure. It is often possible to pass a probe down the duct which is discharging, and this assists in removing the segment involved. So seriously do I regard a discharge from the nipple that I recommend operation in every case. This opinion has been forced on me because on many occasions, when examining the segment of breast resected even from patients with a clear discharge, I have been able to demonstrate a duct papilloma.

The inference is that discharge from the nipple, whether it is blood-stained or not, whether there is a palpable nodule or not, must be treated as serious, and a wedge-shaped resection must be carried out for biopsy, irrespective of age; the older the patient, the more likely is the lesion to be malignant.

Relation of Fibroadenosis and Cancer of the Breast.

Is fibroadenosis a precancerous condition? Is cancer of the breast more common in breasts affected by fibroadenosis than in those not affected by it? What advice are we to give those patients who seek it concerning fibroadenosis of the breast? These questions are perhaps the most difficult to answer in any consideration of breast abnormality. The opinions of surgeons and pathologists vary so much that one can only be guided by one's own clinical experience. It cannot be denied that, in many cases of cancer of the breast, cystic and papillomatous changes are present in areas not involved in the malignant process. Some statistics show this rate to be as high as 20%. The most significant histological feature in areas composed of multiple small cysts is the presence of hyperplasia of the lining of the ducts and acini, which becomes filled with viable cells that retain their normal staining properties. Although such features as the invasion of the walls of the ducts or acini are not evident, it is agreed by the majority of pathologists that such a picture is precancerous.

> This recalls a patient, aged about 50 years, from whom a nodule of the breast was removed. The pathologist reported that it was "cystic hyperplasia", but that its cellular characteristics must be regarded as precancerous. On this report a simple mastectomy was advised and performed. Two years later this patient presented with multiple metastases in the ribs and spine.

Should a radical instead of a simple mastectomy have been performed on this patient? It is advisable always to keep a patient with fibroadenosis under observation, the more especially when there is a definite nodule present, at the same time reassuring her as to its relative innocence. Some patients will question the need for observation of an innocent lesion—an awkward situation when it occurs.

Cancer of the Breast.

Some time has been spent in discussing fibroadenosis on account of the importance of its diagnostic difficulties and prognosis as well as its relative frequency. The next common condition of the breast for which a patient seeks advice is cancer. Always regard with suspician a patient aged over 40 years who complains of a lump in the breast accidentally noticed. Over 90% of patients present thus. Should pain have been the first symptom, the condition is not so likely to be cancer.

The typical scirrhous carcinoma of the breast, with the dimpling of the skin and/or attachment to deeper structures, is easy to diagnose, and whether there are enlarged axillary lymph nodes or not, must always be regarded as a relatively advanced lesion. Of patients with cancer of the breast 75% are aged over 40 years and 65% have metastases at the time of operation. One can readily see the importance of early diagnosis, as well as the need to regard all nodules in the breast as serious, irrespective of age, in view of the large percentage in the younger age group.

Relation Between Trauma and Cancer.

While it is not intended to discuss the hormonal, hereditary and milk factor influences upon the causation of cancer of the breast, it is advisable to consider the relation between trauma and breast cancer, if any. This brings to our notice two benign conditions which can be mistaken for scirrhous carcinoma—fat necrosis and plasma cell mastitis.

Many patients present with a lump in the breast which they attribute to a previous knock or blow, very often quite slight. This is important in these days of much litigation and *Workers' Compensation Acts*. Fat necrosis and plasma cell mastitis are conditions found in the breast, and certainly do seem to follow trauma, which may be severe or even slight. There may be bruising of the breast, but even in these conditions the history of trauma is not necessary. Clinically these conditions look alike at certain stages in their development, and may be confused with carcinoma, even when sections are examined. Histological examination would reveal the true nature of these lesions. When fat necrosis or plasma cell mastitis is definitely diagnosed, it is necessary only to remove the nodule of fat necrosis, while plasma cell mastitis will eventually resolve spontaneously. Are these the cases of cancer of the breast that have cured themselves without treatment?

The position of the breast renders it liable to many traumata, and from our present knowledge it is difficult to apportion blame to trauma for the occurrence of cancer. It is my opinion that the trauma is responsible for drawing the patient's attention to an already existing lesion.

One patient had a very minor trauma to the breast, not severe enough to cause any bruising, and several months later a scirrhous carcinoma was discovered. This patient received workers' compensation for the condition.

It is quite common to be consulted by patients worried over pain and thickening in the breast following a blow from a tennis ball. I do not remember an occasion on which a serious lesion was found. Most of these patients have fibroadenosis. At the same time, it cannot be stressed too strongly that every lump in the breast should be submitted to histological examination.

Simple Tumours of the Breast.

Fibroadenomata are easily diagnosed. They are usually seen in the very young and younger age groups, and are quite discrete and unattached. They are usually noticed accidentally and are easily removed. There appears to be some relationship between these and fibroadenosis, and it is advisable to remove with them some breast tissue to avoid liability to recurrence. They should always be removed.

At times fibroadenomata assume very large size; they are then known by various terms, such as Brodie's serocystic disease, *cystosarcoma phyllodes*, or giant or myxomatous intracanalicular fibroadenoma. Unfortunately the lesion does not always remain simple. I have seen the condition twice; once it was simple, while on the other occasion it was malignant.

Other Lesions.

There are other less common causes of lumps in the breast. These may be due to chronic inflammation and to granulomata—tuberculous, actinomycotic and syphilitic. These conditions must always be considered in relation to any lumps especially associated with a chronic discharge. A true chronic inflammation with discharging sinuses has been seen on several occasions and presented much difficulty in treatment; a simple amputation appears to be the most satisfactory method if the area is too large for local resection.

Tuberculosis of the breast was also diagnosed on several occasions, but was of the secondary type, the lesion having spread from a rib or costal cartilage. I have never seen actinomycosis and syphilis.

Sarcoma of the breast in its various types is not common. These tumours are usually large and circumscribed.

> A patient, aged 49 years, whom I had known for many years, presented herself complaining of pain in the left breast of 11 days' duration, worse when she was not wearing a brassière. She said she was not certain whether a lump was present or not. On examination, however, there was a large mass, 2·5 inches in diameter, in the upper quadrant, not attached to skin or fascia. Although the diagnosis was not definite, the mass was considered suspect, and it was excised with surrounding breast tissue. It was a circumscribed, yellowish mass, which on histological examination was found to be sarcoma. This patient subsequently succumbed to extensive thoracic metastases.

Simple connective tissue tumours of the breast are very uncommon, but lipomata and fibromata do occur.

Metastatic tumours are rare in the breast, although melanomata have been seen.

Paget's disease of the nipple occurs without a tumour more often than with one and must always be regarded seriously. Any suspicious ulcer of the nipple should always be submitted to biopsy and histological examination, because radical mastectomy is indicated when the condition is present.

Conclusion.

It is my opinion, after experience in very many of these cases, that all lumps in the breast should be regarded seriously, and that the only method of making a correct diagnosis is by biopsy. Malignant disease of the breast is comparatively common, and in our present knowledge of the disease it would appear that early diagnosis should lead to a better prognosis.

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British Medical Association.

VICTORIAN BRANCH: SCIENTIFIC.

A MEETING of the Victorian Branch of the British Medical Association was held on June 5, 1957, at the Royal Melbourne Hospital, Parkville. The meeting took the form of a series of clinical demonstrations by the members of the honorary medical staff of the hospital.

Benign Pneumonia Suggesting Carcinoma.

DR. W. M. MAXWELL showed two middle-aged men suffering from pneumonia in the upper lobe of the right lung. In both cases there was clinical and radiological contraction of the lobe early in the phase of resolution of the pneumonia. That had led to a strong suspicion of endobronchial obstruction (due to carcinoma) as the pathological basis of the lesion. (The sputum did not contain tubercle bacilli.) However, bronchoscopy, including right-angle telescopy, revealed no abnormality. One of the patients had since been bronchoscopically examined again, and the right upper lobe bronchus was again found to be clear. Intensive chemotherapy had produced a very satisfactory clearing of the pneumonia in one case and a less clear-cut response in the other.

Lung Function Tests.

Dr. Maxwell also showed the records of three patients who had undergone surgery for unilateral lung disease. Measurements of lung volume subdivisions and the maximum breathing capacity had been made and bronchospirometry had been carried out. The Carlens catheter, used in the last-mentioned test, was demonstrated and the technique of bronchospirometry was briefly described. The surgical specimens shown comprised carcinoma of the left upper lobe bronchus, suppurative pneumonia of the left lung, and a large cyst of the left lung. The bronchospirometric records indicated the defective function (of oxygen uptake, ventilation and vital capacity) on the side of the lesion, and consequently the fraction of the total ventilatory function that would be lost if pneumonectomy had to be performed, as had occurred in two of the cases. Post-operative investigation of the patient with the lung cyst had shown the maximum breathing capacity to be increased.

Human Amnion as a Therapeutic Agent.

DR. W. MCI. ROSE, assisted by DR. M. BROUS, showed a series of patients in whom human amnion had been used as a therapeutic agent. Reference was made to the published work of Tronsegaard-Hansen (*Brit. M. J.*, August 4, 1956), in which implants of amnion had been made in cases of occlusive arterial disease with many good results. When that method was employed, implants being made by Mr. G. R. A. Syme, Mr. D. R. Leslie and Dr. M. Brous, infections at the site of implantation had been so troublesome that another method of administering the material had been sought. Amnion was prepared for subcutaneous injection by a method to be described later, and the patients shown had received either implants *plus* injections, or injections only.

The first group of cases shown were two women and two men suffering from intermittent claudication due to occlusive arterial disease. Three of them had long been in regular attendance at the out-patient department, and the fourth had received much treatment elsewhere. The patients were sceptical of a new treatment's helping them, when everything else over several years had failed to make any lasting improvement. Injections of homogenized amnion were given subcutaneously at weekly intervals until improvement occurred, and then at less frequent intervals. All four patients showed marked symptomatic improvement, two claiming to have lost all pain, even on walking up hill. In the most resistant case, seven injections were given before the patient thought he had improved; but two patients had received only four injections each over seven months. No objective improvement in the pulses in the feet had been seen.

The second patient was a man, aged 34 years, who had been under treatment for Buerger's disease for three years. During 1956 he had been forced to give up work because of pain in his right calf on walking. Intractable ulceration of the right hallux had developed, and arteriograms in June, 1956, had shown a block in the right popliteal artery. By December he had developed rest pain in the calf to such a degree that he was contemplating allowing amputation of the leg. One implant of amnion was performed (this did not become infected), and was followed in three weeks and again a month later by injections. Within three weeks of amnion implantation the ulcer on the great toe was healed for the first time in more than a year. By February, 1957, the patient could walk in comfort, and since March he had earned his living collecting insurance premiums and said that he could walk 20 miles in a day. The skin of his right foot and calf still had a less healthy appearance than that of the left, and no pulses could be felt in his right foot.

The third group of patients shown were three women with ischæmic cardiac pain, all of whom had electrocardiographic changes of confirmatory type. Injections had been given in the same manner as for the patients with intermittent claudication. All three women claimed to have experienced marked improvement, although the electrocardiographic changes in two were even more definite than before treatment.

Finally, three patients were shown suffering from osteo-arthritis and severe pain in relation to their joints. They had all failed to respond to the usual measures of local physical treatment and the administration of analgesics by mouth. Once again, all three claimed to have experienced marked relief of their symptoms.

Dr. Rose and Dr. Brous offered no explanation for the mode of action of amniotic tissue in the conditions under discussion. They emphasized that all the conditions demonstrated were well known to have a variable course, and that only further well-controlled trials could lead to any valid conclusions. However, it was hoped that members who knew of the work might refer suitable patients for further clinical trials.

A Method of Preparing Human Amnion for Subcutaneous Injection.

DR. MICHEL BROUS said that, as a result of the report of the good results obtained in peripheral vascular disease by the implanting of human amnion (Tronsegaard-Hansen, 1956), trials on suitable patients had been undertaken. In the series under discussion it was not found possible to ensure aseptic implantation when the original method described by Tronsegaard-Hansen was employed, and in any case it was thought doubtful whether any living amniotic epithelium would remain after the tissue to be implanted had been boiled. With those factors in mind, a method of preparing human amnion for subcutaneous injection had been developed.

Amniotic membrane from human placenta was collected at delivery under the strictest possible aseptic conditions and snap-frozen at once, by the use of carbon dioxide snow and absolute alcohol. The material was stored in a deep-freeze unit and then homogenized, usually on the day on which it had been collected. Homogenization was performed under strictly aseptic conditions by the use of a glass homogenizer revolving at 1000 revolutions per minute. The resulting material was suspended in 5% sterile dextrose solution, to which 900 milligrammes per litre of erythromycin lactobionate had been added, and was made up to a consistency which would readily pass through a 22-gauge needle. Amounts of 10 millilitres were measured off into rubber-capped bottles, which were then snap-frozen once more and stored in a deep-freeze unit until required for use. The contents were allowed to thaw at room temperature before injection, which was made subcutaneously with a 20-gauge needle.

Dr. Brous said that much help in the technical aspects of the work had been received from the Department of Pathology, University of Melbourne; the Royal Women's Hospital, Melbourne, had collected suitable material, and Mr. W. R. Mackay, Deputy Chief Pharmacist to the Royal Melbourne Hospital, had given invaluable help in the final preparation of the injection.

Disseminated Lupus Erythematosus.

DR. M. HENDERSON and DR. A. BARDSLEY showed three patients to illustrate the natural history of disseminated *lupus erythematosus.*

The first patient, a woman, aged 41 years, had been under observation since 1950, when she presented with fever, joint pains and skin lesions which remitted spontaneously. Further skin lesions had been controlled with mepacrine, then chloroquine. Steroid therapy had never been required, and although the sedimentation rate remained high and L.E. cells were readily found in the blood, the patient maintained reasonably good health.

The second patient, a woman, aged 38 years, had presented in August, 1954, with malaise, fever and bilateral pleural effusions. Cortisone initially produced a manic psychosis, but a further carefully graded course brought the condition under control. A maintenance dose of 150 milligrammes was required. In September, 1956, she developed a pleural effusion, and her sputum contained *Mycobacterium tuberculosis.* She responded well to antituberculosis treatment, but after her discharge from a sanatorium in April, 1957, she became depressed and refused cortisone. The resulting exacerbation in her condition was controlled again with 200 milligrammes of cortisone daily, later changed to prednisone, 50 to 60 milligrammes, because of excessive salt and fluid retention. Electroconvulsive therapy temporarily relieved the depression. She continued to present a very difficult problem in management, because of the high maintenance dose required.

The third patient, a woman, aged 28 years, had a history of Raynaud's phenomenon in the hands, feet and nipples of 12 years' duration, of fatigue for two years, and lately of extreme prostration. She had severe hæmolytic anæmia, a positive response to Coombs's test and numerous L.E. cells in the blood. Response to steroids was not satisfactory, and splenectomy was performed. Three weeks after operation her condition greatly improved.

Scleroderma.

Dr. Henderson and Dr. Bardsley then showed a male patient, aged 47 years, who had a history of five years of disabling pain and stiffness in the limbs, with cyanosis and exaggerated response to cold. In December, 1956, he developed dysphagia. He presented a classical picture of scleroderma with an œsophageal stricture. The dysphagia had responded dramatically to steroid therapy, but the peripheral findings had not greatly changed.

Hamman-Rich Syndrome.

DR. B. L. MARKS discussed the clinical features of the Hamman-Rich syndrome (diffuse interstitial pulmonary fibrosis); he illustrated his comments with slides of the macroscopic and microscopic appearances of the lungs. He referred to the advisability of treating patients with cortisone, and presented the X-ray films from two illustrative cases. One of those patients had responded well clinically, radiologically and on respiratory function tests to a course of prednisolone given over a period of four months to the time of the meeting. In her case the diagnosis was confirmed by lung biopsy prior to the institution of treatment. The other patient, who had also been given prednisolone, had responded less dramatically. However, she felt so well whilst receiving treatment that she discontinued prednisolone against advice. Three weeks later she was extremely short of breath and her X-ray film showed deterioration, the picture somewhat resembling that of pulmonary œdema. She had subsequently made a slow but fairly complete response to further prednisolone in high dosage.

Allergic Conditions.

DR. R. H. O. DONALD showed patients from the allergy clinic, in three categories: (i) a group of asthmatic patients in whom linear cauterization of the nasal septum by the Francis technique had been used to control the attacks of asthma; (ii) a group of four patients who showed bacterial sensitivity, and whose asthma was controlled with bacterial vaccine; (iii) patients with miscellaneous allergic manifestations.

Asthma Relieved by Linear Cauterization of the Nasal Septum.

The first patient was a man, aged 30 years, who had been first examined in 1952, when he complained of perennial asthma of five years' duration, and some hay fever with a recurrent nasal obstruction and thin watery discharge from the nose. On examination of the patient, the mucous membrane of the nose was slightly red, the turbinates were enlarged and polypoid, and a thin, watery discharge was present. The nasal septum was deviated to the left. A few rhonchi were heard in both lungs. Skin testing produced some reactions to spring and autumn pollens, to animal hairs and danders, to kapok and to house dust.

The patient was desensitized with an extract of spring and autumn pollen, but showed no improvement. X-ray films of his chest and sinuses revealed no abnormality, and proof puncture in the ear, nose and throat department produced a return of clear fluid. Linear cauterization by the Francis method was then carried out on the patient's nasal septum on three occasions. That procedure resulted in great relief of his asthma.

Dr. Donald said that it was an interesting feature of the case that the patient was strongly cat-sensitive. On one occasion he had presented with a severe urticarial rash on one leg immediately after a cat had rubbed against the bare skin of the leg.

Dr. Donald's second patient was a woman, aged 43 years, who had been an asthmatic from the age of about 20 years. Her condition had become much worse over the last 10 years; she had become an "asthmatic cripple" with numerous attacks of *status asthmaticus,* and had been an in-patient on many occasions. On examination, the patient was seen to be a thin, pale woman with an almost continuous wheeze; her chest was emphysematous, with scattered rhonchi throughout. Her nose was allergic in appearance, with pale mucosa, swollen and œdematous turbinates, a poor airway and thin, watery discharge. There was an anterior perforation of the nasal septum. (She had had a submucous resection performed in 1943.) X-ray examination of the sinuses revealed no abnormality, and in the chest

emphysema only was present. Skin tests produced strong reactions to house dust, kapok and wheat-flour.

She was desensitized on two occasions, with some improvement. Linear cauterization of her nasal septum by the Francis method had been performed four times, with very great relief of her asthma; also she could now take an interest in life, and looked after her family and home again. Severe asthma did occur once when she developed a cold, but it was controlled by further cauterization.

Dr. Donald next showed a female patient, aged 63 years, who complained of severe perennial hay fever and bronchial asthma, both of which had first occurred at the age of 58 years. On examination of the patient, the mucous membrane of the nose was pale, the turbinates were swollen with a thin, watery discharge, and there was a fair airway. A few rhonchi were heard in the chest. X-ray examination revealed no abnormality in the chest, but slight mucosal thickening in the antra. Skin tests gave negative results, except for an intradermal test with mixed influenza vaccine.

The patient was given a course of injections of mixed influenzal vaccine B (Commonwealth Serum Laboratories). She experienced some improvement, but not complete relief. Linear cauterization by the Francis method was carried out on the nasal septum on two occasions. The bronchospasm was completely relieved, and she had had only one slight attack of asthma in the last six weeks.

Dr. Donald's next patient was a man, aged 61 years, who had suffered from recurrent asthma and bronchitis for over 30 years. He had worked in a very dusty atmosphere (emery) all his life. On examination of the patient, the mucous membrane of his nose was pale, the turbinates were swollen, small nasal polypi were present on the right and left, and there was a thin watery discharge. The chest was emphysematous, with scattered râles and rhonchi. X-ray examination revealed basal emphysema in the chest; the ethmoid sinuses were hazy and the antra opaque. Antral lavage in the ear, nose and throat department returned mucopus from the right and left; culture yielded a growth of *Staphylococcus albus* and *Proteus morganii*. Skin tests revealed considerable sensitivity to house dust, and lesser sensitivity to some animal danders and orris root.

The patient was desensitized with house dust extract and showed some improvement. Severe attacks of asthma had recurred three months prior to the meeting. His nasal septum was cauterized by the Francis method, and he obtained considerable relief from the asthma, but he was still breathless from the emphysema.

The last patient in Dr. Donald's first group was a woman, aged 67 years, who had suffered from chronic asthma for over 20 years. The attacks had first occurred after a thyroidectomy, and had recently been very incapacitating. On examination of the patient, she was seen to be a well-nourished woman. The mucous membrane of the nose was slightly pale and allergic, the turbinates were swollen, the airway was fair, and there was some mucoid discharge. Scattered rhonchi were present in both lungs, and the heart was normal on clinical examination. The blood pressure was 185/110 millimetres of mercury. Skin testing produced negative responses to all allergens except for a "++++" reaction to bacterial vaccine.

The patient was given injections of mixed influenza vaccine B, but the asthma continued. Linear cauterization of the nasal septum was carried out by the Francis method on three occasions. Her blood pressure was reduced to 150/95 millimetres of mercury. There was some relief of the asthma, but she was still extremely dyspnœic.

Later, examination of the patient's heart and lungs revealed that her lungs were almost clear, but gallop rhythm of the heart was present. She was given an injection of "Mersalyl", which was repeated weekly, and great relief of both asthma and dyspnœa followed.

Dr. Donald remarked that the case appeared to be one of bronchial asthma with superimposed cardiac asthma, both of which had now been brought under control.

Asthma Relieved by Bacterial Vaccine.

Dr. Donald next showed a male patient, aged 58 years, who had suffered from severe perennial asthma for seven years after a double radical antrostomy. He had been in the hospital on numerous occasions with severe *status asthmaticus*, which was very difficult to control. On examination of the patient, the mucous membrane of his nose was pale and allergic in appearance, the turbinates were swollen, there were polypi in both nostrils, the airway was fair, and there was some thin nasal discharge. The chest was barrel-shaped. Prolonged expiration and some rhonchi were present. Skin testing produced a negative response to all allergens, except that he showed a marked delayed reaction to mixed bacterial vaccine. He was desensitized with mixed influenza vaccine B, and had not been in hospital or had any attacks of asthma since February, 1956.

The next patient shown by Dr. Donald was a woman, aged 50 years, who had suffered from bronchial asthma for 15 years, the attacks always being worse when she had a cold. On examination of the patient, the mucous membrane of her nose was slightly "allergic". Her chest was clear. Skin testing produced slight reactions to house dust and a strong reaction to mixed bacterial vaccine. She was given four desensitizing courses of mixed bacterial vaccine, and her condition had greatly improved.

Dr. Donald then showed a male patient, aged 40 years, who early in 1955 had been given an injection of 900,000 units of penicillin, after which he developed a very severe generalized rash. Asthma also occurred for the first time in 1955, whereas there had been no previous allergic manifestation; but he had a slight family history of asthma (a sister was an asthmatic). The asthma had been recurrent, and the rash had persisted for months and was irritable. On examination of the patient, the mucous membrane of the nose was slightly pale, the turbinates were not swollen, and there was a mucoid nasal discharge. In the chest râles and rhonchi were heard at the base of each lung. An X-ray examination of his chest revealed no abnormality. An X-ray film of his sinuses showed mucosal thickening in the right antrum, and polypi on the inferior lateral wall; in the left antrum there was gross mucosal thickening, with some clouding of the ethmoids and frontal sinuses. Skin tests produced negative results, except that there was a "+++" delayed reaction to mixed bacterial vaccine.

The patient was given large doses of nicotinic acid and the rash gradually subsided. He was also given three courses of injections of mixed bacterial vaccine, and at the time of the meeting his condition had considerably improved and he had very little asthma.

The last patient in Dr. Donald's second group was a woman, aged 58 years, who had suffered from asthma and some hay fever for the last 10 years. She had as many as three or four bouts of asthma each day. She had had pulmonary tuberculosis at the age of 14 years, and in 1938 had undergone a right radical antrostomy. On examination of the patient, the mucous membrane of her nose was pale and "allergic" in appearance, the turbinates were swollen, there was a mucoid nasal discharge and the airway was poor. Râles and rhonchi were scattered throughout both lungs. Skin testing produced slight reactions to animal danders and a considerable reaction to mixed bacterial vaccine. She had been desensitised with mixed bacterial vaccine, and her condition had considerably improved. Dr. Donald drew attention to the fact that the patient was iodide-sensitive.

Miscellaneous Allergic Manifestations.

Dr. Donald then showed a male patient, aged 40 years, who had been first examined in 1956. He had suffered from constant hay fever for some weeks. He worked in the hospital bed shop making mattresses and pillows, and the hay fever always occurred on contact with kapok. Skin testing produced reactions to spring grass pollens, kapok and orris root. He was being desensitized to those allergens. Dr. Donald said that the patient was shown to demonstrate occupational allergy which had been controlled by desensitization.

Dr. Donald's next patient was a man, aged 20 years, who had been first examined at the age of 14 years, when he had had severe seasonal hay fever and asthma for four years. On examination, the mucous membrane of his nose was pale and sticky, the turbinates were swollen, the airway was poor, and there was a thin, watery discharge. Examination of the chest revealed some prolonged expiration. Skin testing produced strong reactions to spring grass pollens and house dust. He had been desensitized with house dust and pollens on four occasions, and the hay fever and asthma were completely under control.

The last patient shown by Dr. Donald was a woman, aged 51 years, who had suffered from perennial asthma since the age of 12 years, and some hay fever. For the last few years she had had attacks of angioneurotic œdema in the summer. In 1941 she underwent a double radical antrostomy; in 1951 she had a lobectomy and thoracoplasty for bronchiectasis, and in 1955 a left frontal sinus operation with drainage of a brain abscess was performed. On examination of the patient, the mucous membrane of her

nose was pale, the turbinates were slightly swollen, there was a thin watery nasal discharge, the airway was fair and the nasal septum was deviated to the left. No abnormality was detected in the lungs or heart. Generalized rhonchi were heard throughout the lungs, and a healed thoracoplasty scar was seen. Skin testing produced a strong reaction to house dust, orris root and bacterial vaccine. She was given injections of house dust and vaccine, and had already considerably improved.

Chronic Hepatitis and Disseminated Lupus Erythematosus: A Demonstration.

DR. IAN MACKAY, DR. LEON TAFT and members of the Clinical Research Unit showed five patients to illustrate an interrelationship between chronic viral hepatitis and the syndrome of disseminated *lupus erythematosus*. Two patients had chronic viral hepatitis, one of these being maintained in good remission with 50 milligrammes of cortisone per day. In both cases "rosettes" and "tart cells" had been found, but no L.E. cells. The third patient, a female, aged 38 years, had chronic active viral hepatitis and severe joint pains, and L.E. cells were persistently present. The fourth patient was a female, aged 33 years, suffering from severe nutritional hepatitis; L.E. cells were present, and she had recently developed arthritis of the knees and a typical lupus rash on the face. The last patient had true *lupus erythematosus*, and a granulomatous liver lesion had been revealed by liver biopsy. The pathological features were presented of a further case of chronic hepatitis, the clinical course of which was complicated by the appearance of L.E. cells, glomerulonephritis and colitis.

Insulin Resistance in Diabetes Mellitus.

DR. C. W. BAIRD, of the University Department of Medicine, demonstrated some aspects of the problem of insulin resistance in *diabetes mellitus*. Graphs were used to illustrate the amount of (*a*) available insulin, (*b*) extractable insulin (insulin extractable from serum by the use of an organic solvent mixture) and (*c*) insulin inhibitors in the serum of normal humans and diabetic patients, with and without insulin resistance. Measurements were made by means of the rat-diaphragm technique. The results indicated that in normal persons, as well as in most diabetics, both insulin and insulin inhibitors were present in circulation. Common clinical causes of insulin resistance, including the frequently encountered cyclical insulin resistance, were listed and were used as a basis for discussion of possible mechanisms of causation (*e.g.*, points of action of certain hormones on metabolic pathways). A photographic outline of a new insulin micro-assay was presented.

Dr. Baird said that the work had been carried out in collaboration with Dr. J. Bornstein. The assistance of Dr. E. Downie and Dr. H. P. Taft with the clinical material and of the biochemical department of the University of Melbourns with investigational facilities was acknowledged.

Paper Electrophoresis.

MISS BERYL SPLATT and MRS. D. JAMES demonstrated the apparatus used in paper electrophoresis, including bath, power unit and scanner.

Problems in the Treatment of Reflux Œsophagitis.

DR. E. E. DUNLOP discussed problems in the treatment of reflux œsophagitis, and demonstrated illustrative patients, X-ray films, drawings, photographs and clinical data derived from a personal series of 150 patients who had undergone surgical operation for œsophageal hiatal hernia. The patients had been the subject of a paper to the International Congress of Gastro-Enterology in London in 1956. There were 98 females and 52 males, with an average age of 58 years. The following types of hernia were present: para-œsophageal hernia, nine cases; sliding hiatus hernia, 92; mixed, 47; ascending fibrosis of the œsophagus, 2. There was some evidence of œsophagitis in all cases in which the cardia was above the diaphragm. The grounds for operative treatment were severe pain, burning discomfort and intolerable dyspepsia, grave bleeding or anæmia, dysphagia, perforation, and real or suspected gastric or œsophageal carcinoma.

Dr. Dunlop said that three major groups presented for treatment. The first comprised those patients in whom the changes produced by reflux œsophagitis were judged to be reversible if the œsophageal hiatal hernia was repaired. In the case of strictures, that depended largely upon demonstrable ability to dilate the narrow portion with soft bougies, such as mercury bougies. The method of repair depended essentially upon narrowing the œsophageal hiatus until a suitable bougie could just be passed in the lumen of the œsophagus. In that group, an increasing preference emerged for abdominal repair. That had enabled additional abdominal procedures to be carried out in 51 out of 141 operations (most commonly for biliary disorders, or gastrectomy).

The second group comprised patients in whom the changes were considered to be irreversible and resection of the diseased œsophagus to be indicated in the presence of the following circumstances: (*a*) Intractable strictures (seven patients). Œsophago-gastrostomy and œsophago-jejunostomy were both employed with success. A preference emerged for jejunal replacement of the œsophagus. In some cases, jejunum was brought retrosternally to the neck. (*b*) Severe hæmorrhages (three patients). (*c*) Carcinoma of the intrathoracic stomach (seven patients) or œsophagus (three patients). Resection was carried out in nine cases, and a short-circuiting procedure in one.

The third group consisted of patients for whom gastrectomy was considered to be a desirable addition to hiatal repair (19 patients); such circumstances arose if there was (*a*) associated active gastric or duodenal ulcers (13 patients), or (*b*) severe œsophagitis of doubtful reversibility.

Dr. Dunlop, discussing the results, said that patients in the first group, in which repair alone was considered necessary, had given the most pleasing results. There were two deaths in 100 cases, and three recurrences were encountered. In the second group, in which changes were irreversible in elderly patients, the operative mortality for gastro-œsophageal resection was more formidable; but otherwise the patients' lot was desperate or hopeless. In the third group, there appeared to be no doubt that gastrectomy was a wise addition for associated active gastric or duodenal ulcer, and it appeared to have a place in some cases of severe reflux œsophagitis.

Carcinoma of the Breast.

MR. T. H. ACKLAND showed a number of patients to illustrate different aspects of the treatment of carcinoma of the breast.

A female patient, aged 32 years, had presented with a Stage III carcinoma occupying most of the breast. There was skin infiltration with a wide area of *peau d'orange*. Mr. Ackland said that in terms of mobility and only moderate axillary gland involvement, cases such as that were not infrequently regarded as operable; but it was stressed that operation, even following a course of deep X-ray therapy, was not to be recommended under such circumstances. Surgical oophorectomy had been undertaken as the initial step, and radiotherapy would follow, with the administration of testosterone and adrenalectomy as possible other methods to be held in reserve.

Mr. Ackland showed an elderly patient who had had an advanced ulcerating carcinoma treated by palliative excision. He pointed out that since the disease sometimes progressed slowly in very old patients, long relief, or even cure, could on some occasions follow a procedure originally designed as palliative only.

In another patient an even more advanced carcinoma with muscle fixation and fungation had been present. A wide area of infiltration and deep fixation had rendered any local excision impossible, and the patient had been treated by palliative radiotherapy alone. That treatment had been followed by remarkable regression and healing of the ulceration.

Another case illustrated the problem of bleeding from the nipple associated with duct papilloma. Mr. Ackland suggested that whereas in past years undue emphasis had been placed on the likelihood of such a lesion's becoming malignant, at the present time it was probable that the opposite viewpoint was unduly stressed. An attitude of caution was called for in such cases, together with free use of biopsy and frozen section.[1]

Other patients were shown to illustrate Urban's extended radical mastectomy, in which the internal mammary vessels and nodes were removed in addition to the usual radical dissection. Mr. Ackland suggested that that was the logical procedure for early medial quadrant growths in young or middle-aged subjects who were in good general condition.

Another patient was an elderly man, who had presented with an advanced fixed carcinoma of the breast. Local growth had been controlled and partial healing secured by radiation therapy, when the patient developed a vertebral

[1] In this case operation was subsequently performed, and a carcinoma was in fact revealed.

metastasis associated with severe pain. Subcapsular orchidectomy had been followed by complete relief of pain and partial sclerosis of the involved vertebra. That had taken place six months previously, and the patient, who was aged 82 years, was at the time of the meeting free from symptoms. It was suggested that orchidectomy was an important step which should be considered in the treatment of all male patients with carcinoma of the breast.

Carcinoma of the Floor of the Mouth.

Mr. Ackland also showed a patient with carcinoma of the floor of the mouth, who had presented after radiation therapy with the combination of a large radionecrotic ulcer involving bone and residual malignant disease. It was treated by a wide excision, including the whole of the body of the mandible, and a total glossectomy. Intolerable pain was the justification for such radical surgery, in addition to which the absence of involved jugular nodes rendered a cure possible.

Diverticulum of the Bladder.

Mr. Ackland showed a patient with a large diverticulum of the bladder, who had presented with gross and persistent hæmaturia, for the control of which operation became necessary. After the diverticulum had been excised, it was found that the cause was a simple stasis ulcer in its wall. Mr. Ackland discussed difficulties in the removal of bladder diverticula. He said that they chiefly centred around the intimate relationship and adherence of one or both ureters. Bladder-neck fibrosis was also present in the case under discussion, and had been treated by wedge excision.

Oto-Rhino-Laryngological Conditions.

MR. GEORGE SWINBURNE and MR. DAVID COSSAR demonstrated conditions of interest in the field of ear, nose and throat. They included the following: four different innocent laryngeal tumours; neglected nasal polyposis with gross widening at the level of the nasal bones; several types of ear-drum perforation; the use of prosthetics after operations on malignant neoplasms of the upper jaw, nose and accessory nasal sinuses.

Mr. Swinburne and Mr. Cossar finally showed a patient who had undergone laryngectomy, and who had also had a full Crile's neck dissection on one side for laryngeal carcinoma; the patient gave an excellent demonstration of pharyngeal voice production.

Radiological Demonstration.

The X-ray department arranged a demonstration.

DR. E. R. CRISP used a closed-circuit television set-up and a public address system in a trial of multiple viewing centres relayed from one master view-box. Films from patients with tumours of the upper mediastinum were shown, the conditions illustrated including a collapsed right upper lobe, a mass of enlarged glands secondary to a small bronchial neoplasm which was visualized by tomography, and an intrathoracic enlarged thyroid with tracheal compression and displacement.

DR. BARBARA WOOD demonstrated films showing various pathological conditions of the biliary tract using plain radiography, cholecystography (oral and intravenous) and cholangiography. Among the less common lesions shown were Rokitansky-Aschoff sinuses and a polypus of the gall-bladder.

DR. W. S. C. HARE showed a series of angiograms of various types. Femoral arteriograms and aortograms, both translumbar and retrograde, demonstrated aneurysms, thromboses and the results of grafting. The value of renal arteriography in the differentiation of space-occupying lesions in the kidney was discussed; in one case the diagnosis of renal cysts had been made by the percutaneous injection of contrast medium into the lesion. The demonstration also included venous angiocardiograms in cases of pulmonary aneurysm and aortic coarctation, cerebral angiograms and venograms of the lower limb.

Demonstrations by the Department of Anæsthesia.

Respiratory Resuscitation.

DR. PATRICIA WILSON discussed the functions of a unit for respiratory resuscitation. She said that such a unit was available at the Royal Melbourne Hospital for a twenty-four hours' service. It was called to cases of respiratory obstruction and of central and peripheral depression, whatever the cause. Commonly such cases occurred before and after operation, but the unit was also involved in the management of cases of respiratory paralysis due to nerve lesions, *myasthenia gravis*, head injuries, tetanus and severe emphysema.

Three patients were shown: a patient suffering from tetanus who had received respiratory resuscitation for 12 days; a patient with Landry's paralysis who had been receiving artificial respiration for 19 days; and a patient with severe emphysema and *status asthmaticus* who had been resuscitated when *in extremis*.

Equipment demonstrated included an emergency resuscitation basket, kept on each floor of the hospital, comprising a suction apparatus, a means of inflating the lungs with oxygen, laryngoscopes and endotracheal tubes, a bronchoscope with sucker and foreign body forceps and a scalpel for cardiac massage. Other equipment demonstrated included apparatus for measuring percentages of oxygen and carbon dioxide, and cuffed tracheostomy tubes. The administration of helium and oxygen and the functioning of the A.G.A., Harrington-James and Emerson positive pressure respirators were also demonstrated. The Emerson respirator had been lent for the demonstration by Commonwealth Industrial Gases, Proprietary, Limited.

Demonstration of Equipment Used in Hypothermia and Cardiac Surgery.

DR. TREVOR T. CURRIE discussed hypothermia and cardiac surgery. He said that hypothermia, by lowering the oxygen requirements of the body, had enalbled surgeons to occlude temporarily the blood supply to the whole of the body (heart surgery) or to part of the body (cerebral and aortic aneurysms), there being no anoxia provided the limits of the method were not exceeded. Total circulatory occlusion for open heart surgery could be maintained safely for only 10 minutes with hypothermia to 28° C. However, with an efficient blood-oxygenator and total cardiac bypass, much longer periods of complete exclusion of the heart from the circulation could be tolerated. The demonstration included the following:

1. A hypothermia unit,[1] which had thermostatic controls for both cooling and rewarming the fluid which circulated through a special hypothermia blanket.[2]

2. A simple blood oxygenator[3] capable of maintaining the circulation while completely bypassing the heart and lungs, developed by De Wall and associates of Minneapolis, United States of America.

3. An electrocardioscope,[4] which gave both direct writing and oscilloscopic tracings of the electrocardiograph. The apparatus was said to be of great value during operations under hypothermia, in which cardiac irregularities, and in particular ventricular fibrillation, must be detected and treated immediately.

4. Rectal and œsophageal resistance thermometers.[5] Dr. Currie said that to his knowledge the œsophageal resistance thermometer was the first of its kind made in Australia. It had a shortened thermistor embedded in the end of a length of polyvinyl tubing. The œsophageal catheter was pliable and easily inserted into the œsophagus without trauma, and had proved during the two years' service to be robust and reliable.

5. A "mercury-in-steel" rectal thermometer[6] similar to the ordinary motor-car thermometer. Because of its simplicity, it had replaced the rectal resistance thermometer.

6. An electronic automatic cardiac pacemaker.[7] Dr. Currie said that the instrument was used after surgical closure of septal defects of the heart. Such patients were prone to heart-block because of the proximity of the conducting bundle to the septal defect repair. Leads similar to those of the electrocardiograph were attached to the patient's skin. If the heart rate should fall below any predetermined level, an alarm rang and the pacemaker immediately stimulated cardiac contractions at any chosen rate. The apparatus could also be used for patients with heart block from other causes.

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[1] Manufactured by A. G. Healing Ltd., Melbourne; Royal Melbourne Hospital specification.

[2] Manufactured by Prestcold, England (J. Inglis, *Lancet*, 1954, 1:549).

[3] De Wall, Lillehei *et alii*, *Dis. Chest*, 1956, 24:1.

[4] Manufactured by Cambridge Instrument Co., London, S.W.1.

[5] Made by Mr. D. Dewhurst, Physiology Department, University of Melbourne.

[6] Supplied by Medical Industrial Equipment Ltd., London.

[7] Manufactured by Electronic Medical Equipment, Melbourne.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

TRAINING OF MEDICAL STUDENTS.[1]

[From the *Australasian Medical Gazette*, March, 1889.]

THE Committee of the Medical Students Society have brought under the notice of the Council of the University of Melbourne some facts which seemed to the Society to indicate a highly unsatisfactory state of affairs in the Medical School. At the last ordinary examination eighteen candidates entered for senior anatomy, of whom only seven passed. Seventeen entered for regional and applied anatomy, of whom four passed. The students were perfectly satisfied with the fairness of the papers and of the examiners, and they attributed the circumstance that 64 per cent. of the candidates failed to pass to the facts that the supply of bodies for dissection was less than one half of what was required, necessitating two students to be at work on the same part of one body at the same time, that during the year the work of the demonstrator of anatomy had been largely done by substitutes, and that at present fourth year students, while nominally free to attend either the medical or surgical practice of a hospital, were practically obliged to choose the latter, and therefore, while studying pathology as one of the subjects for examination in that year, they were unable to attend either post mortem examinations or pathological demonstrations. Their knowledge, therefore, was almost entirely theoretical and the practical work remained to be done in their fifth year. The committee could not but think that the training of the students and the reputation and success of the Medical School were seriously imperiled if matters were allowed to remain in their present state: and it was therefore respectfully requested that steps should be taken to improve the work in these respects as early as possible in the current year. In the opinion of Dr. Morrison the matters referred to in the communication were of the utmost importance. Many medical students were already leaving for England and elsewhere in consequence of the inadequate teaching given in this University. The matter has been referred to the Medical Faculty for report and suggestions.

On The Periphery.

THINGS WE FORGET.

"FESTUS" writes:

Years ago I was on the back step of a late tram when a big athletic chap jumped on the fast-moving "rattler". He must have knocked me off, for the next I remember was my head being bandaged in the back room of a chemist's shop. A nice young policeman helped me across the footpath into an ambulance, and I heard a female voice: "There's that drunken man that's been fighting."

At the hospital they laid me face down on a metal contraption, and a sleepy doctor put five stitches in my scalp. In borrowed pyjamas, I was helped into bed by a young thing, dark hair, blue eyes; I think she was Irish. She tucked me in and whispered: "Good night." I was probably a bit silly with concussion, because I held her by the hand and said, "Kiss me, nurse", and darned if she didn't. I was ashamed, because I was just off night work, and dirty and unshaven.

Then I couldn't sleep, and at last called the nurse and demanded paper and pencil. In the half-dark I wrote a wonderful poem in free verse about the blue-eyed Irish girl; I think I called her Cleopatra. I know it was good; at any rate, the night nurse said it was marvellous and kept it. I slept, and next morning the nurse and poem were gone, and I couldn't recall more than a fragment of it. I sometimes wish I could get another crack on the cranium; I might remember.

[1] From the original in the Mitchell Library, Sydney.

Special Correspondence.

LONDON LETTER.

FROM OUR SPECIAL CORRESPONDENT.

Tuberculosis in England Today.

RECENTLY published statistics from the General Register Office indicate that mortality from tuberculosis over the past 10 years has declined rapidly. Before 1939, deaths from tuberculosis exceeded 30,000 annually. Last year the figure was down to 5400, largely through the use of antibiotics and chemotherapy. The reduction in the number of notified cases has been much slower. Improved case finding has resulted in earlier notification, and on the whole the cases now being notified represent less infectious forms of the disease than 10 years ago. The introduction of mass radiography has brought to light many unsuspected cases of active respiratory tuberculosis at the rate of three per 1000 of the adult population examined.

Although improved treatment has dramatically reduced the death rate, a long period of invalidism is involved in many cases. The effect on national productivity, even with the present lower incidence, can be judged from the fact that 26,000,000 person-days per year are still lost to industry in Great Britain in persons covered by sickness insurance alone, a record rivalled only by three other types of disease.

As far as respiratory tuberculosis is concerned, the number of tuberculous persons, known or unknown, is estimated to be of the order of 375,000, of whom perhaps 45,000 are infectious. The latter figure may be greater, as medical officers in industry find that a proportion of those returning to work as fit or arrested cases are still infectious. Non-respiratory tuberculosis adds 36,000 to the total tuberculosis population.

The problem of the control of the spread of infection remains serious, and any complacency based on declining mortality and the reduction of notified cases would not be justified. In addition there are an increasing proportion of the young population growing up without contact with the bacillus and therefore without an immunity. There is reason to regret the slow progress of B.C.G. immunization in this country.

The Care of the Aged.

The report of a first attempt on a national basis to assess the quality of the services to old people, carried out in 1954-55 by Dr. C. H. Boucher, of the Ministry of Health, has now been published. The conclusions of this report are the basis on which the Minister of Health has advised hospital and local health authorities on the problem of the care of the elderly. Close cooperation between the local authorities, who are concerned with the care of the old and infirm, and the hospital service, who provide for the elderly sick, is essential in order to provide a single service for the aged. In particular, the joint appointment of a geriatric physician to hospital boards and local authorities, as a method of ensuring close coordination of their respective services, is recommended. The report defines more closely the responsibilities of hospital boards and local authorities in regard to borderline cases which have hitherto given rise to difficulties. The Minister is in agreement with the view of the Guillebaud Committee that: "The first aim should be to make adequate provision wherever possible for the treatment and care of old people in their homes." Admission to hospital should be treated as a last resort, unless they need treatment of a kind which can be given only in hospitals, or unless the burden on younger members of the household becomes so great as to threaten breakdown of the arrangements for looking after them. The Minister urges hospital authorities to develop out-patient services for the elderly, e.g., geriatric clinics, although the ordinary out-patient facilities would continue to be used. There should be in every hospital centre a geriatric department with two main functions: (i) medical and social assessment of all patients whose illness is influenced by social factors; (ii) active rehabilitative treatment for patients who it is expected can be restored to health and return to their homes or to welfare accommodation within a reasonable time.

For the truly chronically sick, long-stay units will be necessary under the care of the geriatric physician, which will facilitate the free transfer of patients between the "acute" wards and the long-stay units.

Provision for other aspects in the care of the elderly, e.g., physiotherapy, chiropody, the work of the almoner, and domiciliary visiting of those thought to need hospital admission, is also dealt with in the survey.

Beach Pollution.

The risk to health in bathing in sewage-polluted waters received considerable attention in the lay and medical Press this summer. This arose from a statement by the Secretary of the Institution of Public Health Engineers on the possibility of a link between poliomyelitis and the discharge of untreated sewage into the sea. Mr. Balsom stated: "No public health engineer would ever think of bathing in the sea who has special knowledge of sewage disposal." On British coasts, it is the general practice in many seaside resorts to discharge sewage at low tides through pipes running up to a mile out into the sea. Although the sewage is carried some distance out to sea, tides and currents may not dissipate the stream of pollution, but deposit it on the coast some way off. So one coastal town may have its seas and beaches polluted by a neighbour. Coastal towns vary in the efficiency of their methods for sewage purification before discharging the effluent into the sea. Schemes which would help to solve the problem are expensive and would require an expenditure of £100,000,000 to £200,000,000, according to one authority. Unless there is substantial proof that there is a risk to health, it is unlikely that the Government in these days of financial stringency would make any substantial contribution.

How great is the danger? The experts of the Ministry of Health find no statistical evidence of any association between the incidence of poliomyelitis and sea bathing. Sea bathing is not apparently a cause of disease, otherwise the incidence of diseases of other intestinal infections, e.g., typhoid fever, would be greater in bathers than in non-bathers. This has not been noticed. They admit that pollution varies up and down the coast and point out the difficulties of obtaining reliable evidence.

The health risk of bathing in sewage-polluted areas is now being investigated by the Public Health Laboratory Service for the Medical Research Council. If this investigation produces evidence that pollution of the sea produces health risks to bathers, the present government policy of curbing local authority expenditure on sewage improvement schemes will be quickly changed. At present, grants are made only where it can be shown that a risk to health exists. Questions of amenity or decency do not enter into the decision.

Doctors' Difficulties.

The end of National Service in 1960 is likely to produce two problems in the medical world—a dearth of doctors in the Armed Forces and the placing of more than 1000 in civilian medical posts. The Waverley Committee Report commented on the number of doctors employed in the Armed Forces, but did not envisage the end of National Service, or the problem which must arise in regard to medical manpower. There is also the problem of the resettlement of large numbers of doctors released from military service over a period of two years. The National Health Service, with its existing establishment, budget and planning, gives no assurance of employment unless more money becomes available.

A disturbing picture of the rate at which Great Britain is losing qualified doctors through emigration is given in a recent issue of *Guy's Hospital Gazette*. Examination of the lists of Guy's men and women who had qualified since the end of the war revealed that the rate of emigration averaged 7%. In some groups it was even higher. Among those who qualified between June, 1954, and June, 1955, the emigration rate was 14%. Emigration was largely to Canada, Australia and the U.S.A. The author of this review states: "It can safely be assumed that there are many doctors whose plans only await the stimulus of a failure to settle the present dispute between the Government and the profession. Britain is likely to become short of medical men of the right type if the present melancholy trend of Government interference, penal taxation, and financial and social frustration, is allowed to continue."

Young doctors find it difficult to enter general practice; for one vacancy there may be as many as 100 applicants. Those with higher qualifications find it difficult, and, in some cases, impossible, to obtain posts of consultant status to which their training and ability entitle them. It is not surprising that such men are seeking and finding employment overseas.

Correspondence.

CHRONIC BRONCHITIS—AUSTRALIAN VIEWPOINT.

SIR: In your issue of November 30, 1957, Dr. Marks stresses the need for the prevention of development and progression of chronic bronchitis. He points out the frequency with which patients suffering from asthma develop persistent bronchitis.

Nevertheless, I consider that many more patients than generally realized are labelled as "bronchitics" (acute or recurrent or chronic), when they are, in fact, suffering from asthma with secondary bronchitis. Careful questioning with due regard to personal and family history will often reveal an otherwise unsuspected asthmatic condition. This fact is frequently overlooked unfortunately, and especially so in children, where the field of prevention is so great.

Dr. Marks points out the susceptibility of these patients to a wide range of irritants. He does not, however, differentiate between direct non-specific irritation of a sensitive mucous membrane, and specific irritation of an allergic nature in a sensitized mucous membrane.

This allergic sensitization is, I think, at least in Australia, a most important contribution to the evolution of chronic bronchitis in many people, as well as other factors, air pollution, infections etc.

It is with surprise, therefore, that I note that no mention is made of the importance of investigating these patients for allergic sensitivities and treatment if indicated by desensitization procedures, as well as elimination and avoidance of air-borne allergens and irritants, control of infection, palliative drug therapy etc.

Yours, etc.,

111 Collins Street, Melbourne,
December 7, 1957.

SOL. BRAND.

Obituary.

VALENTINE McDOWALL.

WE are indebted to Dr. G. W. Macartney for the following appreciation of the late Dr. Valentine McDowall.

Val McDowall was born in Queensland 76 years ago. With the exception of his childhood, and his last two years during which his health was failing, his life was packed with enthusiasm, determination and achievement. Educated at the Brisbane Grammar School, apart from his scholastic attainments he was a most accomplished gymnast—some say the best ever at the Brisbane Grammar School; also he was outstanding as a swimmer. Entering the Sydney medical school in 1900, he graduated in 1905 and became a resident medical officer at the Royal Prince Alfred Hospital. Naturally his sporting trend turned to the water, and he got his "Blue" for rowing. In 1907 he started practice in Laidly, Queensland. At this time country practice was mainly conducted by horse and buggy and on horseback. However, the motor-car was in the offing, and being of the "try anything once type", he was one of the first country practitioners to invest in a motor-car. Many are the stories of his adventures with this new-fangled contraption.

In 1915 he joined the first Australian Imperial Force. His army service in both world wars was outstanding. In the first war he saw service in Egypt and England, and in the second on the home front; apart from his radiological work, he also commanded the 117th Australian General Hospital at Toowoomba for a period. He was radiologist at the Greenslopes Military and Repatriation Hospital from 1941 to 1951.

On his return to Queensland in 1919, he commenced practice in Brisbane as a dermatologist and radiologist, a few years later restricting himself to radiology alone. He was no novice at this speciality, for in his general practice days he had recognized the usefulness of the X ray by installing a machine run by batteries—very different from those in use today.

A man of his ability and tenacity soon became a master of modern techniques in X-ray work, and shortly he had an enormous X-ray practice. To further his knowledge, in 1926

he visited the United States of America on a six months tour of the leading clinics. Always abreast or ahead of modern progress, he was the first doctor in Queensland to have his own radium supply. About 1928 the Commonwealth Government gave the Brisbane General Hospital some milligrammes of radium, and McDowall was, of course, put in charge of this. By his shrewd common sense and clinical acumen he soon became an authority on radiotherapy, and he kept up to date with all advances till his retirement two years ago.

His versatility with electric gadgets was shown as far back as 1920, when as an amateur he established his own experimental radio station, 4CM, transmitting bi-weekly broadcasts from a studio next to his surgery. He was the pioneer in this work, his at that time being the only broadcasting station in Queensland. Again, from 1925 to 1940

station 4CM conducted television experiments, and in 1935 the first actual television transmission in Queensland was broadcast over the air from the Observatory on Wickham Terrace to the *Courier-Mail* office in Queen Street, about 200 yards as the crow flies. McDowall was assisted in these experiments by his great friend Tom Elliott.

Amongst all these technical activities, his next interest turned to flying. An early member of the Aero Club, he took his pilot's licence at the age of 52.

His work from 1919 to 1944 at the Brisbane General Hospital as senior radiologist and later radiotherapist was of the utmost value to that institution and to the public of Queensland. He was a member of the Cancer Trust, forerunner of the Queensland Radium Institute, during its existence. His expert advice was sought in the establishment of the Queensland Radium Institute. His wise advice in the Council of the Queensland Branch of the British Medical Association culminated in his becoming president in 1925. A foundation member of the College of Radiologists of Australasia, he became president of this body in 1947. He was a foundation Fellow of The Royal Australasian College of Physicians, a Fellow of the Faculty of Radiologists of England and a Fellow of the College of Radiologists of Australasia.

These were all rather serious pursuits. His main recreation was in Moreton Bay and on the Barrier Reef. Frequent week-end fishing trips in the winter months and many trips in his fine small ship *Mako* up the Queensland coast as far as Bowen were his great delight. As in all his other interests, he made himself fully conversant with the art of sailing—managing marine engines, navigation, etc.—as well as the wonders of the Great Barrier Reef, many of which he recorded in fine movie colour photography. A trip to New Zealand and Bermagui many years ago to try his hand at the swordfish was one of his treasured memories. As a marksman in field sport he had few peers, and an annual shoot in the Downs, with his brother, the late Dr. Sandy McDowall, in the quail season produced many good bags.

A man of these attainments could not be anything but a humanitarian. His patients were his first consideration, and he was always kindness itself to rich and poor, and many will mourn his passing. His wife predeceased him two years ago. He leaves a daughter and son, to whom we extend our deepest sympathy.

MERRICK FLETCHER O'REILLY.

WE are indebted to Dr. Colin Warburton for the following appreciation of the late Dr. Merrick Fletcher O'Reilly.

Merrick Fletcher O'Reilly died in his home at Pymble on February 8, 1957, aged 67 years. He was the son of Dr. W. W. J. O'Reilly and the brother of Dr. Linn, Dr. Susie and Dr. Olive O'Reilly. Born in Liverpool Street, Sydney, in 1889, he came to Pymble in 1896, to the home in Telegraph Road built by his father. He was educated at St. Ives Public School and then at Newington College, and graduated M.B., Ch.M. at the University of Sydney in 1912. In 1913 he became a resident at Perth General Hospital, and in 1914 began practice in Bega with Dr. John McKee. He joined partnership in 1926 with Dr. John Alcorn at Moss Vale, and later, in 1935, began practice in Parramatta with Dr. Sidney Woolnough, where he stayed until 1947. He succeeded to the family practice at Pymble in 1949, where he remained till his death.

Merrick O'Reilly was the epitome of the good family doctor—painstaking, careful and a truly Christian gentleman. An enthusiastic bowler he remained until the day of his last illness, and at his church he was not only the renowned but also the beloved choir master. He took a keen interest in the affairs of his local medical association, and set an example to his colleagues by his regular attendance at meetings. He is survived by his wife and three sons, the eldest of whom is following the family tradition of medicine, practising as a pathologist in Brisbane.

CHARLES INGLIS McLAREN.

A COLLEAGUE who wishes to remain anonymous sends the following appreciation of the late Dr. Charles Inglis McLaren.

Dr. Charles Inglis McLaren was born in 1882 in Tokyo, Japan, where his father was professor in the Union Theological Seminary for eight years, till ill health forced his return to Scotland. Subsequently he came to Melbourne, where for twenty-five years he was Principal of the Presbyterian Ladies' College. Even sixty years later Dr. McLaren could look back with gratitude to that East Melbourne home, in which love of truth and judicious inquiry and discussion were household habits.

Charles McLaren was educated at Scotch College, and later proceeded to the University of Melbourne and Ormond College to study medicine. In 1907 he graduated M.B., B.S., and then occupied residencies at the Melbourne Hospital and the Children's Hospital; at the latter he became senior registrar, which in those days was equivalent to the present position of medical superintendent. In 1910 he obtained his M.D. degree, and in 1911 he was sent out by the Presbyterian Church of Victoria to Korea, where he worked till 1941.

For the first twelve years he was stationed in Chinju, inland from Fusan, in South Korea, where he did general medical work, surgery and obstetrics, giving part of his time to the work of the Severance Union Medical College in Seoul, where the very important work of training Korean medical students was in its infancy. After serving in France with the Royal Army Medical Corps for fifteen months during the latter part of the first World War, he returned to Korea, and was appointed professor at the Union Medical College, where he held the chair of neurology and psychological medicine, breaking new ground in this important field. Later on, in May, 1929, a post-graduate course in Vienna and the ideas of Adler and Jung served as stimulus and challenge to the lonely worker. He was profoundly interested in the general medical training of the students, and took his full share in the important task of shaping the college's work to the needs of the Seoul community, where Koreans, Japanese, other Orientals and

Westerners alike sought what modern medicine could give to supplement the work of the old-time practitioners of the Chinese school.

Anyone going into Dr. McLaren's consulting room at this period between 1923 and the 1930's would have found a man with sharpened features, who tended to speak in short sentences, but who would listen in a way few can listen, and, after the patient had told all he wanted to, would in a further series of penetrating questions with the utmost kindness seek the root of the trouble. On the wall of the room, the first verse of the sixty-first chapter of the Book of the Prophet Isaiah set forth his commission: "He hath sent me to bind up the brokenhearted, to proclaim liberty to the captives, and the opening of the prison to them that are bound."

Dr. McLaren was always quite uncompromising when he felt a course was right, and made no secret of his ultimate loyalty to God at a time when the Japanese would brook no superior to their emperor, so found himself for eleven weeks in a Japanese prison cell. He was too candid to be regarded as a spy, and his imprisonment was exchanged for house arrest, he thought with Christian Japanese sympathy.

During 1941 he wrote the script of the Sir Richard Stawell Oration, which he had been asked to give. The manuscript was read in his absence by a colleague. Dr. McLaren felt he owed a lifelong debt to Sir Richard Stawell, and took rare satisfaction in applying himself to this task.

Dr. McLaren published various books: "Eleven Weeks in a Japanese Prison Cell", "Preface to Peace with Japan", "Christianity, Communism and the World Situation". Dr. McLaren never let his good deeds be known, and few know that he opened at Severance Medical College the first ward for mentally afflicted patients in Korea, the money for which he in great part gave himself. In recent years he was approached, by someone who knew him well, who sought his permission to give a short history of his life over the air for a session, "The Finest Man I Ever Knew." He was greeted in that short, precise, jerky manner Dr. McLaren had with: "Never—except over my dead body." He had boundless energy and a vigorous mind, and his enthusiasm was most refreshing. He had frequent bouts of ill health, and for the last few years had known he would die of an incurable illness, during the whole course of which he showed remarkable courage. He felt, the last time I saw him (about ten days before he died), that the Christian nations could learn a great deal from the communists economically about what Christ meant when he said, "Thou shalt love thy neighbour as thyself". He never failed to acknowledge all he owed over the years to his wife, who survives him, and to her and her married daughter we extend our heartfelt sympathy.

The whole of Dr. McLaren's life was devoted to the search for truth, a fact which he attributed to the influence of his mother. Nothing less would satisfy him. With an unusually keen mind he sought the truth in things mental and physical and, with a rare intuition, he sought and found the truth in things spiritual. Once having found it, it was not his nature to do other than follow it wherever it might lead. (In one of his earliest writings he referred to "that damnable thing called compromise".) The path was not an easy one, and following it frequently involved him in unpopularity and ridicule; but his courage never faltered, and it may truly be said of him, as of that other Mr. Valiant-for-Truth, that as "he passed over all the trumpets sounded for him on the other side".

DR. J. RINGLAND ANDERSON writes: Graduating 50 years ago with Hugh Devine, M. D. Silberberg, Fay Maclure, E. R. White and Sir Thomas Dunhill's brilliant younger brother, with second-class honours in all subjects, Charlie McLaren started a medical career of the greatest value. Much could be written of him, for to many he was a unique individual, and to some the finest person they had ever met. These three remarks portray certain features of his character.

His only brother had just been killed. He was Sir John Macfarlane's most brilliant Ormond mathematician, and Professor of Mathematics in Reading. An exploding ammunition dump claimed him. And as Charlie, overcome by the destruction of war, sought his brother's grave in the fields of France, he recalled: "Except a corn of wheat fall into the ground and die, it abideth alone." He, too, had learned that life is not getting and spending, but learning the meaning of love.

Years later, having studied under Adler in Vienna, he applied his knowledge and insight into mental problems in erudite lectures and unusually beneficial service. In the course of one lecture he recalled his brother's saying: "Matter is objectified thought." To Charlie the unseen was the real and the everlasting.

All too frequently in later years his body, overstrained by unceasing work, hardship and even imprisonment, gave way. In one such period of ill health he said: "I cannot read the New Testament for long—I find it too exciting." To his clear mind truth at such times appeared without darkness or shadow of turning.

With Edward Wilson and Albert Schweitzer he had staked his all on his vision. May future generations see his like again.

Naval, Military and Air Force.

APPOINTMENTS.

THE following appointments, changes *etc.* are promulgated in the *Commonwealth of Australia Gazette*, No. 63, of November 21, 1957.

NAVAL FORCES OF THE COMMONWEALTH.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Transfer to the Emergency List.—Surgeon Captain James Martin Flattery, O.B.E., is transferred to the Emergency List and reappointed for Temporary Service, dated 2nd November, 1957.

Emergency List.

Transfer to the Retired List.—Surgeon Captain Henry Woodall Gault is transferred to the Retired List, dated 21d November, 1957.

AUSTRALIAN MILITARY FORCES.

Australian Regular Army.

Royal Australian Army Medical Corps (Medical).

3/40054 Captain J. H. Cater relinquishes the temporary rank of Major, 23rd September, 1957, and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Southern Command), 24th September, 1957.

Citizen Military Forces.

Northern Command.

Royal Australian Army Medical Corps (Medical).—The provisional rank of 1/39164 Captain I. R. Ferguson is confirmed. 1/39131 Captain (provisionally) B. S. Purssey ceases to be seconded whilst in the United Kingdom, 9th October, 1957. 1/46933 Captain (provisionally) T. B. Buchanan is appointed from the Reserve of Officers, 24th September, 1957. 1/61852 Captain J. F. O'Duffy relinquishes the provisional rank of Captain, 30th September, 1957, and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Northern Command) in the honorary rank of Captain, 1st October, 1957. To be Captain (provisionally), 9th October, 1957: 1/39211 John Joseph Herron.

Eastern Command.

Royal Australian Army Medical Corps (Medical).—2/226103 Captain R. H. Kaines is placed upon the Retired List (Eastern Command) with permission to retain his rank and wear the prescribed uniform, 30th August, 1957.

Southern Command.

Royal Australian Army Medical Corps (Medical).—The provisional rank of 4/32050 Captain R. A. Westerman is confirmed.

Central Command.

Royal Australian Army Medical Corps (Medical).—The provisional rank of 4/32067 Captain G. L. Mellor is confirmed.

Western Command.

Royal Australian Army Medical Corps (Medical).—5/45805 Captain P. E. Hurst is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical) (Western Command), 1st July, 1957.

Tasmania Command.

Royal Australian Army Medical Corps (Medical).—6/15385 Lieutenant-Colonel L. N. Gollan relinquishes command 12th Field Ambulance, 30th July, 1957, and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Tasmania Command), 31st July, 1957.

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps (Medical).

The following officers are placed upon the Retired List with permission to retain their rank and wear the prescribed uniform, 31st December, 1957:

Southern Command.—Captain T. G. Street and Lieutenant L. C. Carew.

Western Command.—Captain (Honorary Major) L. G. B. Cumpston and Lieutenant E. W. Varcoe.

The following officers are retired:

Southern Command.—Honorary Captain J. G. Moreland, 31st December, 1957.

Western Command.—Honorary Major H. C. Callagher, 31st December, 1957.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Course for Final Examinations for Fellowship of Royal Australasian College of Surgeons.

A COURSE OF INSTRUCTION for candidates for the final examinations for Fellowship of the Royal Australasian College of Surgeons has been organized by the New South Wales State Committee of the Royal Australasian College of Surgeons in conjunction with the Post-Graduate Committee in Medicine. The course will be held from March 17 to April 25, 1958, full time, under the direction of the Professor of Surgery in the University of Sydney, Professor John Loewenthal. The headquarters for candidates will be the Harold Dew Room, New Medical School, University of Sydney. Lectures, demonstrations and clinical teaching will be conducted at each of the four teaching hospitals. Candidates must have passed the primary examination of Fellowship of one of the Royal Colleges.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED NOVEMBER 30, 1957.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	1	3(3)	6(4)	1(1)	1	..	..	..	12
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	2	..	..	..	..	..	..	..	2
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	1(1)	1	..	..	..	..	..	..	2
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	3(3)	6(5)	5(4)	..	..	..	2	..	16
Diphtheria	..	1(1)	..	..	..	..	..	..	1
Dysentery (Bacillary)	..	2(2)	4(3)	..	1(1)	..	..	..	7
Encephalitis	..	1(1)	..	..	..	..	..	..	1
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	1	..	2(1)	..	..	3
Infective Hepatitis	42(27)	26(11)	5	5(4)	13(1)	..	2	..	93
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	3	..	..	..	..	..	3
Malaria	..	..	1(1)	..	..	..	..	..	1
Meningococcal Infection	2(1)	2(2)	..	..	..	..	1	..	5
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	..	..	..	..	..	..	..	..	..
Puerperal Fever	..	..	1(1)	..	..	..	..	..	1
Rubella	..	56(37)	9(7)	38(15)	45(40)	..	..	..	148
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	9(9)	11(8)	4(3)	7(3)	5(1)	1	..	..	37
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	1	..	..	..	..	..	1
Trachoma	..	..	..	..	1	..	1	..	2
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	35(8)	17(9)	10(2)	8(7)	8(7)	5	1	..	84
Typhoid Fever	..	1(1)	..	1(1)	..	1	..	..	3
Typhus (Flea-, Mite- and Tick-borne)	..	..	3(1)	..	1(1)	..	..	..	4
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

The fee for attendance is 20 guineas. The course is limited, and early application to the Course Secretary, Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney, is essential. Telephones: BU 4497-8. Telegraphic address: "Postgrad Sydney."

Medical Practice.

NATIONAL HEALTH ACT.

THE following notice appeared in the *Commonwealth of Australia Gazette*, No. 63, of November 21, 1957.

NATIONAL HEALTH ACT, 1953-1956.

Notice in Pursuance of Section 134A.

Notice is hereby given that the Committee of Inquiry for the State of Victoria, after investigation, having reported on the eighth day of October, 1957, concerning the conduct of Anthony Machin Pryde, of 92 Church Street, Hawthorn, a medical practitioner, in relation to his provision of medical services under Part IV of the National Health Act, 1953-1956, I, Donald Alastair Cameron, Minister of State for Health, did on the 23rd day of October, 1957, reprimand the said Anthony Machin Pryde.

Dated this 23rd day of October, 1957.

DONALD A. CAMERON,
Minister of State for Health.

Notice.

A REQUEST.

ON May 20, 1956, at 6 p.m., a motor-car accident occurred on the Pacific Highway 10 miles north of Raymond Terrace, New South Wales. The car involved was a 1949 model "Rover"; it ran under an unlit stationary truck in the shadows in the middle of the road. The occupants of the car were Mr. and Mrs. Moss, of 2 Campbell Street, Parramatta. Mrs. Moss was critically injured and rendered unconscious; Mr. Moss suffered injuries and shock. They were cared for by two doctors who happened to be in the first car to come upon the scene of the accident. Mrs. Moss, who has now recovered from her injuries, has made many unsuccessful attempts to get into touch with the two doctors who gave the necessary help. She has requested that the story be told in the Journal, in the hope that it may catch the eye of either or both of the doctors concerned, so that they may know that their skilled care and attention really saved her life.

THE NEW SOUTH WALES SPORTS MEDICINE ASSOCIATION.

THE second annual general meeting of the New South Wales Sports Medicine Association, which is the New South Wales Branch of the Australian Sports Medicine Association, will be held in the Board Room, First Floor, Rugby Union House, Crane Place, off 31A Pitt Street, Sydney, at 8 p.m. on Wednesday, January 22, 1958. All medical practitioners interested in the medical aspects of sport are requested to attend.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Mackie, Ian John, M.B., B.S., 1956 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown, New South Wales.

Toakley, Jean Larrey, M.B., B.S., 1956 (Univ. Sydney), 53 Roslyn Gardens, Elizabeth Bay, New South Wales.

The undermentioned have been elected as members of the New South Wales Branch of the British Medical Association: Gunn, Elizabeth Janet, M.B., B.S., 1957 (Univ. Sydney); Fowler, Francis Bursill, M.B., B.S., 1956 (Univ. Sydney); Munro, Lyle, M.B., B.S., 1955 (Univ. Sydney); McDonell, John Alexander, M.B., B.S., 1956 (Univ. Sydney); Ledowsky, Wladimir, M.D., 1937 (Univ. Belgrade) (registered under Section 17 (2*b*) of the *Medical Practitioners Act*, 1938-1957).

Deaths.

THE following deaths have been announced:

SEELEY.—Dudley Munster Seeley, on November 23, 1957, at Mornington, Victoria.

FLYNN.—Michael Richard Flynn, on December 11, 1957, at Lewisham, New South Wales.

Diary for the Month.

DEC. 27.—Queensland Branch, B.M.A.: Council Meeting.

1958.

JAN. 6.—New South Wales Branch, B.M.A.: Executive and Finance Committee.

JAN. 7.—New South Wales Branch, B.M.A.: Council Meeting.

JAN. 10.—Tasmanian Branch, B.M.A.: Branch Council.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales. Anti-Tuberculosis Association of New South Wales.

Queensland Branch (Honorary Secretary, 88 L'Estrange Terrace, Kelvin Grove, Brisbane, W.1): All applicants for Queensland State Government Insurance Office positions are advised to communicate with the Honorary Secretary of the Branch before accepting posts.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

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